KRONOS INDUSTRIES

# PRODUCT CATALOG

## Industrial Sensors

442 items · Item numbers OPS-20001 to OPS-20442

TO ORDER OR REQUEST A QUOTE

**info@kronosindustries.ca**

Please quote the item number (OPS-#####)

## INDUCTIVE PROXIMITY SENSORS 4

- Standard function 5
- Intrinsically safe series 8
- Frequency enhanced 9
- Extended sensing distance 9
- Analog output 11
- Extended temperature 12
- High pressure resistant 12
- Full metal housing 13
- Rotation speed monitor 13
- Gear speed monitoring 14
- Welding-immune 14
- Self-diagnosis 15
- Factor one 15
- Clamp position series 15
- High pressure resistant speed monitoring 16
- High protection type 16

## CAPACITIVE PROXIMITY SENSORS 18

- Standard function 19
- Time delay function 20
- Extended sensing distance 20
- Corrosion resistance 21
- Pipe liquid level detecting 22
- High temperature resistant material level detecting 22

## PHOTOELECTRIC SENSORS 24

- Through beam 25
- Through beam (slot type) 26
- Retro reflection 28
- Polarized reflection 29
- Transparent object detection 29
- Diffuse reflection 29
- Background suppression 31
- Focus reflection 32
- TOF reflection 32
- Mark sensors 33
- Optical fiber sensors 33
- Optical fiber cables, reflective 34
- Optical fiber cables, through-beam 35
- Optical fiber cables, flexible 35
- Color sensors, amplifier 36
- Color sensors, detection head 36

## LASER & MEASURING SENSORS 38

- Digital laser distance sensors 39
- Laser distance sensors 41

Laser distance sensors (TOF) 42
Digital laser displacement sensors 43
Laser displacement sensors 46
CCD laser diameter measurement 47
Thin gas pressure sensor 48

**LIGHT CURTAINS 50**
Area light curtains 51
Measuring light curtains 52

**TENSION SENSORS 55**
Tension sensors 56

**SENSOR ACCESSORIES 57**
Connection cables with LED 58
Connection cables 58
Connectors 59
Distribution boxes 60
Mounting brackets 61
Reflectors 64

KRONOS INDUSTRIES

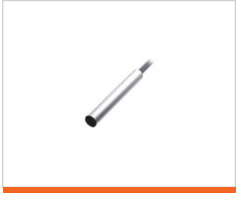
# Inductive Proximity Sensors

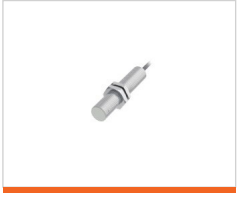
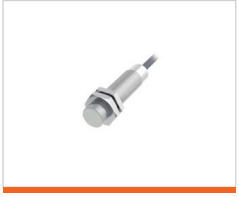
98 items

- Contactless, no abrasion, high reliability.
- LED indicator.
- Diameter from Φ4 to M30, multiple lengths available, square specifications from 5*5 to 80*80.
- Cable and connector connection optional.
- Stable performance with professional IC design.
- Short-circuit protection, reverse polarity protection, overload protection and surge protection.
- Widely applied in position control and counting functions.

info@kronosindustries.ca

## Standard function



| ITEM NO. | OPS-20001<br>Ø4 smooth barrel | OPS-20002<br>M5 threaded | OPS-20003<br>Ø6.5 smooth barrel | OPS-20004<br>M8 threaded | OPS-20005<br>M12 threaded – Connection: Cable |
|---|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each | Each |
| Dimensions (mm) | Φ4*30, Φ4*54 | M5*0.5*30, M5*0.5*40 | Φ6.5*40, Φ6.5*43, Φ6.5*49, Φ6.5*52 | M8*1*40, M8*1*43, M8*1*49, M8*1*52, M8*1*65, M8*1*68 | M12*1*51, M12*1*55 |
| Mounting | Flush | Flush | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush |
| Sensing distance | 0.8mm | 0.8mm | 1.5mm, 2mm | 1.5mm, 2mm | 2mm, 4mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC | 10...30 VDC | 10...30 VDC; 20...250 VAC |
| Frequency | 2000Hz | 2000Hz | 2000Hz, 1500Hz | 2000Hz, 1500Hz | DC3/4: 1500Hz, 1000Hz; DC2: 800Hz, 500Hz; AC2: 20Hz |
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C |
| Protection degree | IP67 | IP67 | IP67 | IP67 | IP67 |
| Housing material | Stainless steel | Stainless steel | Stainless steel | Stainless steel; Nickel-copper Alloy | Nickel-copper Alloy |
| Connection | Cable, M8 Connector | Cable, M8 Connector | Cable, M8 Connector | Cable; M8/M12 Connector | Cable |
| Certification | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL, CCC |
| Output DC 2-wire | — | — | NO; NC | NO; NC | NO; NC |
| Output DC 4-wire | — | — | — | — | NPN NO+NC; PNP NO+NC |
| Output AC 2-wire | — | — | — | — | NO; NC |







| ITEM NO. | OPS-20006<br>M18 threaded – Connection: Cable | OPS-20007<br>M30 threaded – Connection: Cable | OPS-20008<br>M12 threaded – Connection: M12 Connector | OPS-20009<br>M18 threaded – Connection: M12 Connector | OPS-20010<br>M30 threaded – Connection: M12 Connector |
|---|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each | Each |
| Dimensions (mm) | M18*1*51.5, M18*1*59.5 | M30*1.5*52, M30*1.5*64 | M12*1*63, M12*1*67 | M18*1*63, M18*1*71 | M30*1.5*63, M30*1.5*75 |
| Mounting | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush |
| Sensing distance | 5mm, 8mm | 10mm, 15mm | 2mm, 4mm | 5mm, 8mm | 10mm, 15mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC; 20...250 VAC/DC | 10...30 VDC | 10...30 VDC; 20...250 VAC | 10...30 VDC; 20...250 VAC/DC | 10...30 VDC; 20...250 VAC/DC |
| Frequency | DC3/4: 1000Hz, 800Hz; DC2: 500Hz, 300Hz; AC2: 20Hz | DC3/4: 500Hz, 300Hz; DC2: 200Hz; AC2: 20Hz | DC3/4: 1500Hz, 1000Hz; DC2: 800Hz, 500Hz; AC2: 20Hz | DC3/4: 500Hz, 300Hz; DC2: 500Hz, 300Hz; AC2: 20Hz | DC3/4: 500Hz, 300Hz; DC2: 200Hz; AC2: 20Hz |
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C |
| Protection degree | IP67 | IP67 | IP67 | IP67 | IP67 |
| Housing material | Nickel-copper Alloy | Nickel-copper Alloy | Nickel-copper Alloy | Nickel-copper Alloy | Nickel-copper Alloy |

| ITEM NO. (cont.) | OPS-20006<br>M18 threaded – Connection: Cable | OPS-20007<br>M30 threaded – Connection: Cable | OPS-20008<br>M12 threaded – Connection: M12 Connector | OPS-20009<br>M18 threaded – Connection: M12 Connector | OPS-20010<br>M30 threaded – Connection: M12 Connector |
|---|---|---|---|---|---|
| Connection | Cable | Cable | M12 Connector | M12 Connector | M12 Connector |
| Certification | CE, UKCA, UL, CCC | CE, UKCA, UL, CCC | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL |
| Output DC 2-wire | NO; NC | NO; NC | NO; NC | NO; NC | NO; NC |
| Output DC 4-wire | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC |
| Output AC 2-wire | NO; NC | NO; NC | NO; NC | NO; NC | NO; NC |
| Output AC/DC 2-wire | NO; NC | NO; NC | — | NO; NC | NO; NC |







| ITEM NO. | OPS-20011<br>7.5*8*23 mm block (option A) | OPS-20012<br>7.5*8*23 mm block (option B) | OPS-20013<br>7.5*8*23 mm block (option C) | OPS-20014<br>7*12*27 mm block | OPS-20015<br>7.1*12*27.8 mm block |
|---|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each | Each |
| Dimensions (mm) | 7.5*8*23 | 7.5*8*23 | 7.5*8*23 | 7*12*27 | 7.1*12*27.8 |
| Mounting | Non-flush | Non-flush | Non-flush | Non-flush | Non-flush |
| Sensing distance | 2.5mm | 2.5mm | 2.5mm | 3mm | 4mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC | 10...30 VDC | 10...30 VDC |
| Frequency | 1000Hz | 1000Hz | 1000Hz | 1000Hz | 800Hz |
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C |
| Protection degree | IP67 | IP67 | IP67 | IP67 | IP67 |
| Housing material | PC | PC | PC | PC | PC |
| Connection | Cable | Cable | Cable | Cable | Cable |
| Certification | CE, UKCA | CE, UKCA | CE, UKCA | CE, UKCA | CE, UKCA |







| ITEM NO. | OPS-20016<br>8*15*31.5 mm block | OPS-20017<br>18*10*30 mm block | OPS-20018<br>16*28*12 mm block | OPS-20019<br>17*17*28 mm block | OPS-20020<br>18*18*35 mm block |
|---|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each | Each |
| Dimensions (mm) | 8*15*31.5 | 18*10*30 | 16*28*12 | 17*17*28 | 18*18*35 |
| Mounting | Non-flush | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush |
| Sensing distance | 5mm | 5mm, 8mm | 2mm, 4mm | 5mm, 8mm | 5mm, 8mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC | 10...30 VDC; 90...250 VAC | 10...30 VDC; 90...250 VAC |
| Frequency | 800Hz | 1000Hz, 800Hz | 1000Hz, 800Hz | DC3/4: 700Hz, 500Hz; DC2: 700Hz, 500Hz; AC2: 20Hz | DC3/4: 700Hz, 500Hz; DC2: 700Hz, 500Hz; AC2: 20Hz |
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C |
| Protection degree | IP67 | IP67 | IP67 | IP67 | IP67 |
| Housing material | PC | PBT | PBT | PBT | PBT |

| ITEM NO. (cont.) | OPS-20016<br>8*15*31.5 mm block | OPS-20017<br>18*10*30 mm block | OPS-20018<br>16*28*12 mm block | OPS-20019<br>17*17*28 mm block | OPS-20020<br>18*18*35 mm block |
|---|---|---|---|---|---|
| Connection | Cable | Cable | Cable | Cable | Cable |
| Certification | CE, UKCA | CE, UKCA | CE, UKCA | CE, UKCA | CE, UKCA |
| Output DC 2-wire | — | — | — | NO; NC | NO; NC |
| Output AC 2-wire | — | — | — | NO; NC | NO; NC |







| ITEM NO. | OPS-20021<br>20*20*38 mm block | OPS-20022<br>25*25*39 mm block | OPS-20023<br>30*30*53 mm block | OPS-20024<br>40*40*53 mm block | OPS-20025<br>36*60*8mm mm block |
|---|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each | Each |
| Dimensions (mm) | 20*20*38 | 25*25*39 | 30*30*53 | 40*40*53 | 36*60*8mm |
| Mounting | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush |
| Sensing distance | 5mm, 8mm | 7mm, 10mm | 10mm, 15mm | 15mm, 20mm | 5mm, 8mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC; 20...250 VAC | 10...30 VDC; 20...250 VAC | 10...30 VDC; 20...250 VAC | 10...30 VDC; 20...250 VAC; 20...250 VAC/DC | 10...30 VDC |
| Frequency | DC3/4: 700Hz, 500Hz; DC2: 700Hz, 500Hz; AC2: 20Hz | DC3/4: 700Hz, 500Hz; DC2: 700Hz, 500Hz; AC2: 20Hz | DC3/4: 700Hz, 500Hz; DC2: 700Hz, 500Hz; AC2: 20Hz | DC3/4: 400Hz, 200Hz; DC2: 400Hz, 200Hz; AC2: 20Hz | 700Hz, 500Hz |
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C |
| Protection degree | IP67 | IP67 | IP67 | IP67 | IP67 |
| Housing material | PBT | PBT | PBT | PBT | PBT |
| Connection | Cable | Cable | Cable | Cable | Cable |
| Certification | CE, UKCA | CE, UKCA | CE, UKCA | CE, UKCA | CE, UKCA |
| Output DC 2-wire | NO; NC | NO; NC | NO; NC | NO; NC | — |
| Output DC 4-wire | — | — | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC | — |
| Output AC 2-wire | NO; NC | NO; NC | NO; NC | NO; NC | — |







| ITEM NO. | OPS-20026<br>25*10*50 mm block | OPS-20027<br>20*40*71 mm block | OPS-20028<br>40*40*66 mm block | OPS-20029<br>40*40*120 mm block | OPS-20030<br>40*80*98 mm block |
|---|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each | Each |
| Dimensions (mm) | 25*10*50 | 20*40*71, 20*40*80 | 40*40*66 | 40*40*120, 40*40*129 | 40*80*98, 40*80*104 |
| Mounting | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush |
| Sensing distance | 5mm, 8mm | 15mm, 25mm | 15mm, 20mm | 15mm, 20mm | 40mm, 50mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC | 10...30 VDC; 20...250 VAC; 20...250 VAC/DC | 10...30 VDC; 20...250 VAC; 20...250 VAC/DC | 10...30 VDC; 20...250 VAC; 20...250 VAC/DC | 10...30 VDC; 20...250 VAC; 20...250 VAC/DC |
| Frequency | 700Hz, 500Hz | DC3/4: 500Hz, 300Hz; DC2: 500Hz, 300Hz; AC2: 20Hz | DC3/4: 500Hz, 300Hz; DC2: 500Hz, 300Hz; AC2: 20Hz | DC3/4: 500Hz, 300Hz; DC2: 500Hz, 300Hz; AC2: 20Hz | DC3/4: 100Hz, 50Hz; DC2: 100Hz, 50Hz; AC2: 10Hz |
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C |

| ITEM NO. (cont.) | OPS-20026<br>25*10*50 mm block | OPS-20027<br>20*40*71 mm block | OPS-20028<br>40*40*66 mm block | OPS-20029<br>40*40*120 mm block | OPS-20030<br>40*80*98 mm block |
|---|---|---|---|---|---|
| Protection degree | IP67 | IP67 | IP67 | IP67 | IP67 |
| Housing material | PBT | PBT | PBT | PBT | PBT |
| Connection | Cable | Cable, M12 Connector | M12 Connector | M12 Connector; Terminal connect | M12 Connector; Terminal connect |
| Certification | CE, UKCA | CE, UKCA | CE, UKCA | CE, UKCA | CE, UKCA |
| Output DC 2-wire | NO; NC | NO; NC | NO; NC | NO; NC | NO; NC |
| Output DC 4-wire | — | — | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC |
| Output AC 2-wire | NO; NC | NO; NC | NO; NC | NO; NC | NO; NC |
| Output AC/DC 2-wire | — | NO; NC | NO; NC | NO; NC | NO; NC |





| ITEM NO. | OPS-20031<br>5*5*25 mm block | OPS-20032<br>8*8*40 mm block (option A) | OPS-20033<br>8*8*40 mm block (option B) |
|---|---|---|---|
| Unit of measure | Each | Each | Each |
| Dimensions (mm) | 5*5*25 | 8*8*40, 8*8*50 | 8*8*40, 8*8*50 |
| Mounting | Flush | Flush | Flush |
| Sensing distance | 0.8mm | 1.5mm | 1.5mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC |
| Frequency | 1800Hz | 2000Hz | 2000Hz |
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C |
| Protection degree | IP67 | IP67 | IP67 |
| Housing material | Aluminum alloy | Aluminum alloy | Aluminum alloy |
| Connection | Cable, M8 Trunk line type | Cable, M8 Connector | Cable, M8 Connector |
| Certification | CE, UKCA | CE, UKCA | CE, UKCA |
| Output DC 2-wire | NO; NC | — | — |

## Intrinsically safe series







| ITEM NO. | OPS-20034<br>M5 threaded – Mounting: Flush | OPS-20035<br>M5 threaded – Mounting: Flush, Non-flush | OPS-20036<br>M8 threaded | OPS-20037<br>M12 threaded | OPS-20038<br>M18 threaded |
|---|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each | Each |
| Dimensions (mm) | M5*0.5*30 | M5*6.5*22, M5*6.5*25 | M8*1*22, M8*1*25 | M12*1*31, M12*1*35 | M18*1*31.5, M18*1*39.5 |
| Mounting | Flush | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush |
| Sensing distance | 0.8mm | 1.5mm, 2mm | 1.5mm, 2mm | 2mm, 4mm | 5mm, 8mm |
| Output NAMUR | NC | NC | NC | NC | NC |
| Supply voltage | 7.7...9 VDC | 7.7...9 VDC | 7.7...9 VDC | 7.7...9 VDC | 7.7...9 VDC |
| Frequency | 3000Hz | 3000Hz | 2500Hz, 2000Hz | 2000Hz, 1500Hz | 1500Hz, 1000Hz |

| ITEM NO. (cont.) | OPS-20034<br>M5 threaded – Mounting: Flush | OPS-20035<br>M5 threaded – Mounting: Flush, Non-flush | OPS-20036<br>M8 threaded | OPS-20037<br>M12 threaded | OPS-20038<br>M18 threaded |
|---|---|---|---|---|---|
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C |
| Protection degree | IP67 | IP67 | IP67 | IP67 | IP67 |
| Housing material | Stainless steel | Stainless steel | Stainless steel | Nickel-copper Alloy | Nickel-copper Alloy |
| Connection | Cable | Cable | Cable | Cable | Cable |





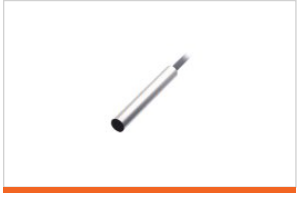

| ITEM NO. | OPS-20039<br>M30 threaded | OPS-20040<br>40*40*66 mm block | OPS-20041<br>40*40*120 mm block | OPS-20042<br>40*80*98 mm block |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Dimensions (mm) | M30*1.5*32, M30*1.5*44 | 40*40*66 | 40*40*120, 40*40*129 | 40*80*98, 40*80*104 |
| Mounting | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush |
| Sensing distance | 10mm, 15mm | 15mm, 20mm | 15mm, 20mm | 40mm, 50mm |
| Output NAMUR | NC | NC | NC | NC |
| Supply voltage | 7.7...9 VDC | 7.7...9 VDC | 7.7...9 VDC | 7.7...9 VDC |
| Frequency | 1000Hz, 800Hz | 400Hz, 250Hz | 400Hz, 250Hz | 100Hz |
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C |
| Protection degree | IP67 | IP67 | IP67 | IP67 |
| Housing material | Nickel-copper Alloy | PBT | PBT | PBT |
| Connection | Cable | M12 Connector | M12 Connector; Terminal connect | M12 Connector; Terminal connect |

## Frequency enhanced




| ITEM NO. | OPS-20043<br>M12 threaded | OPS-20044<br>M18 threaded |
|---|---|---|
| Unit of measure | Each | Each |
| Dimensions (mm) | M12*1*61, M12*1*65, M12*1*73, M12*1*77 | M18*1*61.5, M18*1*69.5, M18*1*73, M18*1*81 |
| Mounting | Flush, Non-flush | Flush, Non-flush |
| Sensing distance | 2mm, 4mm | 5mm, 8mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC | 10...30 VDC |
| Frequency | 4000Hz, 3000Hz | 2000Hz, 1500Hz |
| Ambient temperature | -25°C...70°C | -25°C...70°C |
| Protection degree | IP67 | IP67 |
| Housing material | Nickel-copper Alloy | Nickel-copper Alloy |
| Connection | Cable, M12 Connector | Cable, M12 Connector |
| Certification | CE, UKCA, UL | CE, UKCA, UL |

## Extended sensing distance






| ITEM NO. | OPS-20045<br>Ø4 smooth barrel | OPS-20046<br>M5 threaded | OPS-20047<br>Ø6.5 smooth barrel | OPS-20048<br>M8 threaded |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Dimensions (mm) | Φ4*30, Φ4*54 | M5*0.5*30, M5*0.5*40 | Φ6.5*40, Φ6.5*43, Φ6.5*49, Φ6.5*52 | M8*1*40, M8*1*54, M8*1*65 |
| Mounting | Quasi-flush | Quasi-flush | Quasi-flush, Non-flush | Quasi-flush, Non-flush |
| Sensing distance | 1.5mm | 1.5mm | 2mm, 4mm | 2mm, 4mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC | 10...30 VDC |
| Frequency | 1200Hz | 1200Hz | DC3/4: 1500Hz, 1000Hz; DC2: 1500Hz, 1000Hz | DC3/4: 1500Hz, 1000Hz; DC2: 1500Hz, 1000Hz |
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C |
| Protection degree | IP67 | IP67 | IP67 | IP67 |
| Housing material | Stainless steel | Stainless steel | Stainless steel | Stainless steel |
| Connection | Cable, M8 Connector | Cable, M8 Connector | Cable; M8/M12 Connector | Cable; M8/M12 Connector |
| Certification | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL |
| Output DC 4-wire | — | — | NO; NC | — |
| Output DC 2-wire | — | — | — | NO; NC |






| ITEM NO. | OPS-20049<br>M12 threaded | OPS-20050<br>M18 threaded | OPS-20051<br>M30 threaded | OPS-20052<br>20*40*68 mm block |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Dimensions (mm) | M12*1*51, M12*1*55, M12*1*63, M12*1*67, M12*1*61, M12*1*65, M12*1*73, M12*1*77 | M18*1*51.5, M18*1*59.5, M18*1*61.5, M18*1*69.5, M18*1*63, M18*1*71, M18*1*73, M18*1*81 | M30*1.5*52, M30*1.5*64, M30*1.5*63, M30*1.5*75, M30*1.5*62, M30*1.5*74, M30*1.5*73, M30*1.5*85 | 20*40*68 |
| Mounting | Quasi-flush, Non-flush | Quasi-flush, Non-flush | Quasi-flush, Non-flush | Flush, Non-flush |
| Sensing distance | 4mm, 6mm, 8mm, 10mm | 8mm, 12mm, 20mm | 15mm, 22mm, 40mm | 22mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC; 20...250 VAC | 10...30 VDC; 20...250 VAC; 20...250 VAC/DC | 10...30 VDC; 20...250 VAC; 20...250 VAC/DC | 10...30 VDC |
| Frequency | DC3/4: 800Hz, 500Hz, 600Hz, 400Hz; DC2: 800Hz, 500Hz; AC2: 20Hz | DC3/4: 400Hz, 200Hz, 200Hz, 100Hz; DC2: 400Hz, 200Hz; AC2: 20Hz | DC3/4: 300Hz, 150Hz, 100Hz, 50Hz; DC2: 300Hz, 150Hz; AC2: 20Hz | 200Hz |
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C |
| Protection degree | IP67 | IP67 | IP67 | IP67 |
| Housing material | Nickel-copper Alloy | Nickel-copper Alloy | Nickel-copper Alloy | PBT |
| Connection | Cable, M12 Connector | Cable, M12 Connector | Cable, M12 Connector | Cable, M12 Connector |
| Certification | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA |
| Output DC 4-wire | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC | — |

| ITEM NO. (cont.) | OPS-20049<br>M12 threaded | OPS-20050<br>M18 threaded | OPS-20051<br>M30 threaded | OPS-20052<br>20*40*68 mm block |
|---|---|---|---|---|
| Output DC 2-wire | NO; NC | NO; NC | NO; NC | — |
| Output AC 2-wire | — | NO; NC | NO; NC | — |
| Output AC/DC 2-wire | — | NO; NC | NO; NC | — |





| ITEM NO. | OPS-20053<br>40*40*66 mm block | OPS-20054<br>40*40*120 mm block | OPS-20055<br>40*80*98 mm block |
|---|---|---|---|
| Unit of measure | Each | Each | Each |
| Dimensions (mm) | 40*40*66 | 40*40*120, 40*40*129 | 40*80*98, 40*80*104 |
| Mounting | Quasi-flush, Non-flush | Quasi-flush, Non-flush | Quasi-flush, Non-flush |
| Sensing distance | 25mm, 40mm | 25mm, 40mm | 50mm, 70mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC; 20...250 VAC; 20...250 VAC/DC | 10...30 VDC; 20...250 VAC; 20...250 VAC/DC | 10...30 VDC; 20...250 VAC; 20...250 VAC/DC |
| Frequency | DC3/4: 200Hz, 100Hz; DC2: 200Hz, 100Hz; AC2: 20Hz | DC3/4: 200Hz, 100Hz; DC2: 200Hz, 100Hz; AC2: 20Hz | DC3/4: 50Hz, 30Hz; DC2: 50Hz, 30Hz; AC2: 20Hz |
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C |
| Protection degree | IP67 | IP67 | IP67 |
| Housing material | PBT | PBT | PBT |
| Connection | M12 Connector | M12 Connector; Terminal connect | M12 Connector; Terminal connect |
| Certification | CE, UKCA | CE, UKCA | CE, UKCA |
| Output DC 4-wire | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC |
| Output DC 2-wire | NO; NC | NO; NC | NO; NC |
| Output AC 2-wire | NO; NC | NO; NC | NO; NC |
| Output AC/DC 2-wire | NO; NC | NO; NC | NO; NC |

## Analog output







| ITEM NO. | OPS-20056<br>M12 threaded | OPS-20057<br>M18 threaded | OPS-20058<br>M30 threaded | OPS-20059<br>40*40*66 mm block | OPS-20060<br>40*40*120 mm block |
|---|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each | Each |
| Dimensions (mm) | M12*1*61, M12*1*65, M12*1*73, M12*1*77 | M18*1*61.5, M18*1*69.5, M18*1*73, M18*1*81 | M30*1.5*62, M30*1.5*74, M30*1.5*73, M30*1.5*85 | 40*40*66 | 40*40*120, 40*40*129 |
| Mounting | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush |
| Sensing distance | 0.4...2mm, 0.8...4mm | 1...5mm, 1.6...8mm | 2...10mm, 3...15mm | 2...10mm, 3...15mm | 2...10mm, 3...15mm |
| Output voltage | 0...10V | 0...10V | 0...10V | 0...10V | 0...10V |
| Output current | 0...20mA/4...20mA | 0...20mA/4...20mA | 0...20mA/4...20mA | 0...20mA/4...20mA | 0...20mA/4...20mA |
| Output voltage + current | 0...10V+0...20mA | 0...10V+0...20mA | 0...10V+0...20mA | 0...10V+0...20mA | 0...10V+0...20mA |
| Supply voltage | 15...30 VDC | 15...30 VDC | 15...30 VDC | 15...30 VDC | 15...30 VDC |
| Frequency | 200Hz, 100Hz | 200Hz, 100Hz | 200Hz, 100Hz | 100Hz, 50Hz | 100Hz, 50Hz |

| ITEM NO. (cont.) | OPS-20056<br>M12 threaded | OPS-20057<br>M18 threaded | OPS-20058<br>M30 threaded | OPS-20059<br>40*40*66 mm block | OPS-20060<br>40*40*120 mm block |
|---|---|---|---|---|---|
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C |
| Protection degree | IP67 | IP67 | IP67 | IP67 | IP67 |
| Housing material | Nickel-copper Alloy | Nickel-copper Alloy | Nickel-copper Alloy | PBT | PBT |
| Connection | Cable, M12 Connector | Cable, M12 Connector | Cable, M12 Connector | M12 Connector | M12 Connector; Terminal connect |
| Certification | CE, UKCA | CE, UKCA | CE, UKCA | CE, UKCA | CE, UKCA |

## Extended temperature







| ITEM NO. | OPS-20061<br>M12 threaded | OPS-20062<br>M18 threaded | OPS-20063<br>M30 threaded | OPS-20064<br>40*40*66 mm block | OPS-20065<br>40*40*120 mm block |
|---|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each | Each |
| Dimensions (mm) | M12*1*51, M12*1*55, M12*1*63, M12*1*67 | M18*1*51.5, M18*1*59.5, M18*1*63, M18*1*71 | M30*1.5*52, M30*1.5*64, M30*1.5*63, M30*1.5*75 | 40*40*66 | 40*40*120, 40*40*129 |
| Mounting | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush |
| Sensing distance | 2mm, 4mm | 5mm, 8mm | 10mm, 15mm | 15mm, 20mm | 15mm, 20mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC | 10...30 VDC | 10...30 VDC |
| Frequency | 1500Hz, 1000Hz | 1000Hz, 800Hz | 500Hz, 300Hz | 300Hz, 200Hz | 300Hz, 200Hz |
| Ambient temperature | -40°C...70°C;<br>-25°C...120°C | -40°C...70°C;<br>-25°C...120°C | -40°C...70°C;<br>-25°C...120°C;<br>-25°C...180°C | -40°C...70°C;<br>-25°C...100°C | -40°C...70°C;<br>-25°C...100°C |
| Protection degree | IP67 | IP67 | IP67 | IP67 | IP67 |
| Housing material | Nickel-copper Alloy | Nickel-copper Alloy | Nickel-copper Alloy | PBT | PBT |
| Connection | Cable; M12 Connector | Cable; M12 Connector | Cable; M12 Connector | M12 Connector | M12 Connector; Terminal connect |
| Certification | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA | CE, UKCA |

## High pressure resistant






| ITEM NO. | OPS-20066<br>M12 threaded | OPS-20067<br>M14 threaded | OPS-20068<br>M16 threaded | OPS-20069<br>M18 threaded |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Dimensions (mm) | M12*1*62, M12*1*77 | M14*1*54, M14*1*64 | M16*1*63, M16*1*73 | M18*1*58, M18*1*74 |
| Mounting | Flush | Flush | Flush | Flush |
| Sensing distance | 1.5mm | 1.5mm, 3mm | 2mm | 2mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC | 10...30 VDC |
| Frequency | 600Hz | 600Hz | 600Hz | 200Hz |

| ITEM NO. (cont.) | OPS-20066<br>M12 threaded | OPS-20067<br>M14 threaded | OPS-20068<br>M16 threaded | OPS-20069<br>M18 threaded |
|---|---|---|---|---|
| Withstand pressure | 500Bar | 500Bar | 500Bar | 500Bar |
| Ambient temperature | -25°C...70°C | -25°C...80°C | -25°C...80°C | -25°C...80°C |
| Protection degree | IP68 | IP68 | IP68 | IP68 |
| Housing material | Stainless steel | Stainless steel | Stainless steel | Stainless steel |
| Connection | Cable, M12 Connector | Cable, M12 Connector | Cable, M12 Connector | Cable, M12 Connector |
| Certification | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL |

## Full metal housing





| ITEM NO. | OPS-20070<br>M12 threaded | OPS-20071<br>M18 threaded | OPS-20072<br>M30 threaded |
|---|---|---|---|
| Unit of measure | Each | Each | Each |
| Dimensions (mm) | M12*1*74 | M18*1*74 | M30*1*74 |
| Mounting | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush |
| Sensing distance | 2mm, 4mm | 5mm, 8mm | 10mm, 15mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC |
| Frequency | 300Hz | 200Hz | 100Hz |
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C |
| Protection degree | IP67 | IP67 | IP67 |
| Housing material | 316L Stainless steel | 316L Stainless steel | 316L Stainless steel |
| Connection | M12 Connector | M12 Connector | M12 Connector |
| Certification | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL |

## Rotation speed monitor




| ITEM NO. | OPS-20073<br>M18 threaded | OPS-20074<br>M30 threaded |
|---|---|---|
| Unit of measure | Each | Each |
| Dimensions (mm) | M18*1*61.5, M18*1*69.5 | M30*1.5*62, M30*1.5*74 |
| Mounting | Flush, Non-flush | Flush, Non-flush |
| Sensing distance | 5mm, 8mm | 10mm, 15mm |
| Output DC 3-wire | NPN NC; PNP NC | NPN NC; PNP NC |
| Output AC 2-wire | NC | NC |
| Supply voltage | 10...30 VDC; 20...250 VAC | 10...30 VDC; 20...250 VAC |
| Frequency | DC: 3...3000 times/min; AC: 3...1200 times/min | DC: 3...3000 times/min; AC: 3...1200 times/min |
| Ambient temperature | -25°C...70°C | -25°C...70°C |

| ITEM NO. (cont.) | OPS-20073<br>M18 threaded | OPS-20074<br>M30 threaded |
|---|---|---|
| Protection degree | IP67 | IP67 |
| Housing material | Nickel-copper Alloy | Nickel-copper Alloy |
| Connection | Cable | Cable |
| Certification | CE, UKCA | CE, UKCA |

## Gear speed monitoring






| ITEM NO. | OPS-20075<br>M12 threaded – Connection: Cable | OPS-20076<br>M12 threaded – Connection: M12 Connector | OPS-20077<br>M18 threaded – Connection: Cable | OPS-20078<br>M18 threaded – Connection: M12 Connector |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Dimensions (mm) | M12*1*61 | M12*1*73 | M18*1*61.5 | M18*1*73 |
| Mounting | Flush | Flush | Flush | Flush |
| Sensing distance | 2mm | 2mm | 2mm | 2mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC | 10...30 VDC |
| Frequency | 25000Hz | 25000Hz | 25000Hz | 25000Hz |
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C |
| Protection degree | IP67 | IP67 | IP67 | IP67 |
| Housing material | Nickel-copper Alloy | Nickel-copper Alloy | Nickel-copper Alloy | Nickel-copper Alloy |
| Connection | Cable | M12 Connector | Cable | M12 Connector |

## Welding-immune

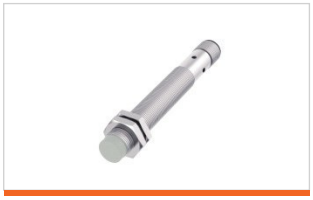





| ITEM NO. | OPS-20079<br>M12 threaded | OPS-20080<br>M18 threaded | OPS-20081<br>M30 threaded | OPS-20082<br>26.2*20.2*10.5 mm block |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Dimensions (mm) | M12*1*51, M12*1*55, M12*1*63, M12*1*67 | M18*1*51.5, M18*1*59.5, M18*1*63, M18*1*71 | M30*1.5*52, M30*1.5*64, M30*1.5*63, M30*1.5*75 | 26.2*20.2*10.5 |
| Mounting | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush | Flush |
| Sensing distance | 2mm, 4mm | 5mm, 8mm | 10mm, 15mm | 0.3mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO |
| Supply voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC | 10...30 VDC |
| Frequency | 3000Hz, 2000Hz | 1500Hz, 1000Hz | 800Hz, 500Hz | 500Hz |
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C |
| Protection degree | IP67 | IP67 | IP67 | IP67 |
| Housing material | Brass + PTFE | Brass + PTFE | Brass + PTFE | PA66 |
| Connection | Cable, M12 Connector | Cable, M12 Connector | Cable, M12 Connector | Cable |

| ITEM NO. (cont.) | OPS-20079<br>M12 threaded | OPS-20080<br>M18 threaded | OPS-20081<br>M30 threaded | OPS-20082<br>26.2*20.2*10.5 mm block |
|---|---|---|---|---|
| Certification | CE, UKCA | CE, UKCA | CE, UKCA | CE, UKCA |

## Self-diagnosis

| ITEM NO. | OPS-20083<br>M12 threaded – Connection: Cable | OPS-20084<br>M12 threaded – Connection: M12 Connector |
|---|---|---|
| Unit of measure | Each | Each |
| Dimensions (mm) | M12*1*70 | M12*1*69, M12*1*89 |
| Mounting | Non-flush | Non-flush |
| Sensing distance | 3.7mm | 3.7mm |
| Output DC 3-wire | PNP NO; PNP NC | PNP NO; PNP NC |
| Supply voltage | 20...30 VDC | 20...30 VDC |
| Frequency | 300Hz | 300Hz |
| Ambient temperature | -25°C...70°C | -25°C...70°C |
| Protection degree | IP67 | IP67 |
| Housing material | Nickel-copper Alloy | Nickel-copper Alloy |
| Connection | Cable | M12 Connector |
| Certification | CE, UKCA, UL | CE, UKCA, UL |

## Factor one







| ITEM NO. | OPS-20085<br>M12 threaded | OPS-20086<br>M18 threaded | OPS-20087<br>M30 threaded | OPS-20088<br>40*40*66 mm block | OPS-20089<br>40*40*120 mm block |
|---|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each | Each |
| Dimensions (mm) | M12*1*51, M12*1*55, M12*1*63, M12*1*67 | M18*1*51.5, M18*1*59.5, M18*1*63, M18*1*71 | M30*1.5*52, M30*1.5*64, M30*1.5*63, M30*1.5*75 | 40*40*66 | 40*40*120, 40*40*129 |
| Mounting | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush |
| Sensing distance | 2mm, 4mm | 5mm, 8mm | 10mm, 15mm | 15mm, 20mm | 15mm, 20mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Output DC 4-wire | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC |
| Supply voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC | 10...30 VDC | 10...30 VDC |
| Frequency | 800Hz, 500Hz | 400Hz, 200Hz | 300Hz, 150Hz | 200Hz, 100Hz | 200Hz, 100Hz |
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C |
| Protection degree | IP67 | IP67 | IP67 | IP67 | IP67 |
| Housing material | Nickel-copper Alloy | Nickel-copper Alloy | Nickel-copper Alloy | PBT | PBT |
| Connection | Cable, M12 Connector | Cable, M12 Connector | Cable, M12 Connector | M12 Connector | M12 Connector; Terminal connect |

## Clamp position series







| ITEM NO. | OPS-20090<br>47*18*35 mm block (option A) | OPS-20091<br>47*18*35 mm block (option B) | OPS-20092<br>47*18*35 mm block (option C) | OPS-20093<br>47*18*35 mm block (option D) | OPS-20094<br>18...28mm mm block |
|---|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each | Each |
| Dimensions (mm) | 47*18*35 | 47*18*35 | 47*18*35 | 47*18*35 | 18...28mm |
| Mounting | Non-flush | Non-flush | Non-flush | Non-flush | Non-flush |
| Sensing distance | 2mm | 2mm | 2mm | 2mm | 2mm |
| Output DC 4-wire | NPN NO+NO; PNP NO+NO | NPN NO+NO; PNP NO+NO | NPN NO+NO; PNP NO+NO | NPN NO+NO; PNP NO+NO | NPN NO+NO; PNP NO+NO |
| Supply voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC | 10...30 VDC | 10...30 VDC |
| Frequency | 30Hz | 30Hz | 30Hz | 30Hz | 1000Hz |
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C |
| Protection degree | IP67 | IP67 | IP67 | IP67 | IP67 |
| Housing material | PA66 | PA66 | PA66 | PA66 | PA66 |
| Connection | M12 Connector | M12 Connector | M12 Connector | M12 Connector | M12 Connector |
| Certification | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL |

## High pressure resistant speed monitoring




| ITEM NO. | OPS-20095<br>M12 threaded – Sensing distance: 4mm | OPS-20096<br>M12 threaded – Sensing distance: 2mm |
|---|---|---|
| Unit of measure | Each | Each |
| Dimensions (mm) | M12*77 | M12*77.5 |
| Mounting | Flush | Flush |
| Sensing distance | 4mm | 2mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC | 10...30 VDC |
| Withstand pressure / voltage | 500Bar | 500Bar |
| Frequency | 5000Hz | 20000Hz |
| Ambient temperature | -30°C...110°C | -40°C...80°C |
| Protection degree | IP68 | IP68 |
| Housing material | Stainless steel | Stainless steel |
| Connection | M12 Connector | M12 Connector |
| Certification | CE, UKCA | CE, UKCA |

## High protection type





| ITEM NO. | OPS-20097<br>M18 threaded | OPS-20098<br>M30 threaded |
|---|---|---|
| Unit of measure | Each | Each |
| Dimensions (mm) | M18*52.5 | M30*53 |
| Mounting | Quasi-flush, Flush | Flush |
| Sensing distance | 5mm, 8mm | 10mm, 15mm |
| Output DC 4-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC | 10...36 VDC |
| Withstand pressure / voltage | 1000V/AC 50/60Hz 60s | 1000V/AC 50/60Hz 60s |
| Frequency | 1000Hz, 500Hz | 500Hz |
| Ambient temperature | -40°C...85°C | -40°C...85°C |
| Protection degree | IP68/IP69K | IP68/IP69K |
| Housing material | Nickel-copper Alloy | Nickel-copper Alloy |
| Connection | Cable; M12 connector (4 pins) + 0.2m cable | Cable; M12 connector (4 pins) + 0.2m cable |
| Certification | CE, UKCA, UL | CE, UKCA, UL |

KRONOS INDUSTRIES

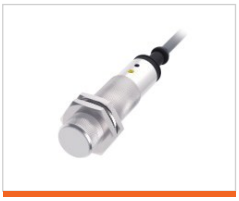
# Capacitive Proximity Sensors

32 items

- Wide range of detecting targets: metal, plastic and fluid.
- Able to detect different objects inside a container through a non-metallic container wall.
- Sensitivity can be adjusted by potentiometer.

info@kronosindustries.ca

## Standard function




| ITEM NO. | OPS-20099<br>M12 threaded | OPS-20100<br>M18 threaded | OPS-20101<br>M30 threaded – Mounting: Flush, Non-flush | OPS-20102<br>Ø20 smooth barrel | OPS-20103<br>Ø32 smooth barrel – Mounting: Flush, Non-flush |
|---|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each | Each |
| Dimensions (mm) | M12*1*52, M12*1*65 | M18*1*70, M18*1*83.5 | M30*1.5*62, M30*1.5*79 | Φ20*80 | Φ32*80 |
| Mounting | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush |
| Sensing distance | 2mm, 4mm | 5mm, 8mm | 10mm, 15mm | 10mm, 15mm | 15mm, 20mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC | 10...30 VDC; 20...250 VAC | 10...30 VDC; 20...250 VAC; 20...250 VAC/DC | 10...30 VDC; 20...250 VAC | 10...30 VDC; 20...250 VAC; 20...250 VAC/DC |
| Frequency | 50Hz | 50Hz, 15Hz | 50Hz, 15Hz | 50Hz, 15Hz | 50Hz, 15Hz |
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C |
| Protection degree | IP67 | IP67 | IP67 | IP67 | IP67 |
| Housing material | Nickel-copper Alloy, PA66 | Nickel-copper Alloy, PBT | Nickel-copper Alloy, PBT | Nickel-copper Alloy, PBT | Nickel-copper Alloy, PBT |
| Connection | Cable, M12 Connector | Cable, M12 Connector | Cable, M12 Connector | Cable | Cable |
| Certification | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL |
| Output DC 4-wire | — | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC |
| Output AC 2-wire | — | NO; NC | NO; NC | NO; NC | NO; NC |
| Output AC/DC 2-wire | — | NO; NC | NO; NC | — | NO; NC |







| ITEM NO. | OPS-20104<br>Ø34 smooth barrel | OPS-20105<br>M30 threaded – Mounting: Flush | OPS-20106<br>Ø32 smooth barrel – Mounting: Flush | OPS-20107<br>50*20*5 mm block – Sensing distance: 3.5mm, 5mm, 8mm | OPS-20108<br>30*7*50 mm block – Sensing distance: 3.5mm, 5mm, 8mm |
|---|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each | Each |
| Dimensions (mm) | Φ34*80 | M30*64 | Φ32*80 | 50*20*5 | 30*7*50 |
| Mounting | Flush, Non-flush | Flush | Flush | Non-flush | Flush, Non-flush |
| Sensing distance | 15mm, 25mm | 10mm | 15mm | 3.5mm, 5mm, 8mm | 3.5mm, 5mm, 8mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | — | — | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC; 20...250 VAC; 20...250 VAC/DC | 20...250V AC/DC | 20...250V AC | 10...30 VDC | 10...30 VDC |
| Frequency | 50Hz, 15Hz | — | — | 30Hz | 60Hz |
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C | -10°C...70°C |
| Protection degree | IP67 | IP68 | IP67 | IP67 | IP67 |
| Housing material | PBT | PBT | PC/PBT | PBT | PBT |
| Connection | Cable | Cable, M12 Connector | Cable | Cable | Cable |
| Certification | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA | CE, UKCA |
| Output DC 4-wire | NPN NO+NC; PNP NO+NC | — | — | — | — |

| ITEM NO. (cont.) | OPS-20104<br>Ø34 smooth barrel | OPS-20105<br>M30 threaded – Mounting: Flush | OPS-20106<br>Ø32 smooth barrel – Mounting: Flush | OPS-20107<br>50*20*5 mm block – Sensing distance: 3.5mm, 5mm, 8mm | OPS-20108<br>30*7*50 mm block – Sensing distance: 3.5mm, 5mm, 8mm |
|---|---|---|---|---|---|
| Output AC 2-wire | NO; NC | NO; NC | — | — | — |
| Output DC 2-wire | NO; NC | — | — | — | — |
| Output AC/DC 5-wire | — | — | NO+NC | — | — |







| ITEM NO. | OPS-20109<br>50*20*5 mm block – Sensing distance: 6mm (adjustable) | OPS-20110<br>30*7*50 mm block – Sensing distance: 5mm, 8mm | OPS-20111<br>50*7*20 mm block | OPS-20112<br>35*15*58 mm block | OPS-20113<br>39*59*15 mm block |
|---|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each | Each |
| Dimensions (mm) | 50*20*5 | 30*7*50 | 50*7*20 | 35*15*58 | 39*59*15 |
| Mounting | Non-flush | Flush, Non-flush | Non-flush | Flush, Non-flush | Non-flush |
| Sensing distance | 6mm (adjustable) | 5mm, 8mm | 10mm | 10mm, 15mm | 12mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC | 10...30 VDC | 10...30 VDC |
| Frequency | 30Hz | 60Hz | 30Hz | 50Hz | 50Hz |
| Ambient temperature | -25°C...70°C | -10°C...70°C | -10°C...70°C | -10°C...70°C | -10°C...70°C |
| Protection degree | IP67 | IP67 | IP67 | IP67 | IP67 |
| Housing material | PBT | PBT | PBT | PBT | PBT |
| Connection | Cable | Cable | Cable | Cable | Cable |
| Certification | CE, UKCA | CE, UKCA | CE, UKCA | CE, UKCA | CE, UKCA |
| Output DC 4-wire | — | — | — | NPN NO+NC; PNP NO+NC | — |

## Time delay function





| ITEM NO. | OPS-20114<br>M30 threaded | OPS-20115<br>Ø32 smooth barrel | OPS-20116<br>Ø34 smooth barrel |
|---|---|---|---|
| Unit of measure | Each | Each | Each |
| Dimensions (mm) | M30*64 | Φ32*80 | Φ34*80 |
| Mounting | Flush | Flush | Flush, Non-flush |
| Sensing distance | 10mm | 15mm | 15mm, 25mm |
| Output AC/DC 5-wire | NO; NC | NO; NC | Relay output NO+NC |
| Supply voltage | 20...250V AC/DC | 20...250V AC | 20...250 VAC |
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C |
| Protection degree | IP68 | IP67 | IP67 |
| Housing material | PBT | PC/PBT | PBT |
| Connection | Cable | Cable | Cable |
| Frequency | — | — | 1Hz |

## Extended sensing distance



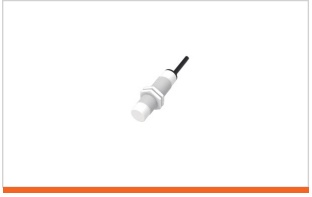



| ITEM NO. | OPS-20117<br>M12 threaded (option A) | OPS-20118<br>M12 threaded (option B) | OPS-20119<br>M18 threaded – Protection degree: IP67 | OPS-20120<br>M30 threaded – Frequency: 40Hz |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Dimensions (mm) | M12*1*63, M12*1*65.5, M12*1*75, M12*1*80.5 | M12*1*63, M12*1*68, M12*1*75, M12*1*80 | M18*1*70, M18*1*85, M18*1*80, M18*1*95 | M30*1.5*64, M30*1.5*81, M30*1.5*79, M30*1.5*96 |
| Mounting | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush |
| Sensing distance | 4mm, 8mm | 4mm, 8mm | 8mm, 12mm | 15mm, 25mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC | 10...30 VDC |
| Frequency | 40Hz | 25Hz | 25Hz | 40Hz |
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C | -25°C...70°C |
| Protection degree | IP67 | IP67 | IP67 | IP67 |
| Housing material | Nickel-copper Alloy | Nickel-copper Alloy | Nickel-copper Alloy | Nickel-copper Alloy |
| Connection | Cable, M12 Connector | Cable, M12 Connector | Cable, M12 Connector | Cable, M12 Connector |
| Certification | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL |
| Output DC 4-wire | — | — | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC |




| ITEM NO. | OPS-20121<br>M12 threaded (option C) | OPS-20122<br>M18 threaded – Protection degree: IP68 | OPS-20123<br>M30 threaded – Frequency: 20Hz |
|---|---|---|---|
| Unit of measure | Each | Each | Each |
| Dimensions (mm) | M12*1*62, M12*1*67, M12*1*74, M12*1*79 | M18*1*70, M18*1*85, M18*1*80, M18*1*95 | M30*1.5*64, M30*1.5*81, M30*1.5*79, M30*1.5*96 |
| Mounting | Flush, Non-flush | Flush, Non-flush | Flush, Non-flush |
| Sensing distance | 4mm, 8mm | 8mm, 12mm | 15mm, 25mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC |
| Frequency | 40Hz | 25Hz | 20Hz |
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C |
| Protection degree | IP68 | IP68 | IP68 |
| Housing material | PBT | PBT | PBT |
| Connection | Cable, M12 Connector | Cable, M12 Connector | Cable, M12 Connector |
| Certification | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL |
| Output DC 4-wire | — | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC |

## Corrosion resistance



| ITEM NO. | OPS-20124<br>M18 threaded – Mounting: Non-flush | OPS-20125<br>M18 threaded – Mounting: Flush, Non-flush | OPS-20126<br>M18 threaded – Mounting: Quasi-flush, Non-flush |
|---|---|---|---|
| Unit of measure | Each | Each | Each |
| Dimensions (mm) | M18*80 | M18*70.8 | M18*70.8 |
| Mounting | Non-flush | Flush, Non-flush | Quasi-flush, Non-flush |
| Sensing distance | 5mm (contact use) | 5mm, 8mm | 8mm, 12mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Output DC 4-wire | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC |
| Supply voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC |
| Ambient temperature | -25°C...70°C | -25°C...70°C | -25°C...70°C |
| Protection degree | IP67 | IP67 | IP67 |
| Housing material | PTFE | PTFE | PTFE |
| Connection | Cable | Cable | Cable |
| Certification | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL |
| Frequency | — | 20Hz | 20Hz |

## Pipe liquid level detecting





| ITEM NO. | OPS-20127<br>43*24*20 mm block | OPS-20128<br>34*33*20 mm block |
|---|---|---|
| Unit of measure | Each | Each |
| Dimensions (mm) | 43*24*20 | 34*33*20 |
| Mounting | Non-flush | Non-flush |
| Sensing distance | 13mm | 26mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC | 10...30 VDC |
| Frequency | 60Hz | 60Hz |
| Ambient temperature | -10°C...55°C | -10°C...55°C |
| Protection degree | IP67 | IP67 |
| Housing material | PBT | PBT |
| Connection | Cable | Cable |
| Certification | CE, UKCA | CE, UKCA |

## High temperature resistant material level detecting





| ITEM NO. | OPS-20129<br>95.5*55*22 mm block (option A) | OPS-20130<br>95.5*55*22 mm block (option B) |
|---|---|---|
| Unit of measure | Each | Each |
| Dimensions (mm) | 95.5*55*22 | 95.5*55*22 |
| Mounting | Non-flush | Non-flush |
| Sensing distance | 8mm | 8mm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 18...36 VDC | 18...36 VDC |
| Frequency | 0.3Hz | 0.3Hz |
| Ambient temperature | Sensor: 250°C; Control box: 0°C...60°C | Sensor: 250°C; Control box: 0°C...60°C |
| Protection degree | IP54 | IP54 |
| Housing material | PA6 | PA6 |
| Connection | Cable | Cable |
| Certification | CE, UKCA | CE, UKCA |

KRONOS INDUSTRIES

# Photoelectric Sensors

93 items

- Easy to set up and adjust distance.
- Short-circuit protection and reverse polarity protection.
- Cable and connector connection optional.
- Stainless steel housing, strong and durable; plastic housing, economical and easy to install.
- Light-ON / dark-ON conversion function.
- Built-in power supply: AC, DC or AC/DC universal.
- Relay output, capacity up to 250VAC x 3A.

info@kronosindustries.ca

## Through beam






| ITEM NO. | OPS-20131<br>M12 barrel | OPS-20132<br>M18 barrel – Protection degree: IP67 | OPS-20133<br>(option A) | OPS-20134<br>(option B) |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Sensing distance | 5m, 10m | 10m, 20m | 20m | 20m |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | — | — |
| Supply voltage | 10...30 VDC | 10...30 VDC; 20...250 VAC | 10...30 VDC | 10...30 VDC |
| Response time | DC: <8.2ms | DC: <8.2ms; AC: <50ms | DC: ≤1ms | DC: ≤1ms |
| Ambient temperature | -15°C...55°C | -15°C...55°C | -25°C...55°C | -25°C...55°C |
| Protection degree | IP67 | IP67 | IP67 | IP67 |
| Housing material | Nickel-copper Alloy, PBT | Nickel-copper Alloy, PBT | Nickel-copper Alloy | PC/ABS |
| Connection | Cable, M12 Connector | Cable, M12 Connector | Cable, M12 Connector | Cable, M12 Connector |
| Certification | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA | CE, UKCA |
| Output DC 4-wire | — | NPN NO+NC; PNP NO+NC | NPN NO/NC; PNP NO/NC | NPN NO/NC; PNP NO/NC |
| Output AC 2-wire | — | NO; NC | — | — |






| ITEM NO. | OPS-20135<br>M18 barrel – Protection degree: IP65 | OPS-20136<br>M30 barrel – Sensing distance: 20m, 40m | OPS-20137<br>M30 barrel – Sensing distance: 100m, 150m | OPS-20138<br>(option C) |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Sensing distance | 10m, 20m | 20m, 40m | 100m, 150m | 50cm, 100cm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC; 20...250 VAC | 10...30 VDC; 20...250 VAC | 10...30 VDC | 10...30 VDC |
| Response time | DC: <8.2ms; AC: <50ms | DC: <8.2ms; AC: <50ms | DC: <8.2ms | DC: <1ms |
| Ambient temperature | -15°C...55°C | -15°C...55°C | -15°C...55°C | -20°C...55°C |
| Protection degree | IP65 | IP67 | IP67 | IP65 |
| Housing material | Nickel-copper Alloy, PBT | Nickel-copper Alloy, PBT | Nickel-copper Alloy, PBT | PC + PBT |
| Connection | Cable, M12 Connector | Cable, M12 Connector | Cable | Cable |
| Certification | CE, UKCA, UL | CE, UKCA, UL | — | CE, UKCA |
| Output DC 4-wire | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC | — |
| Output AC 2-wire | NO; NC | NO; NC | — | — |






| ITEM NO. | OPS-20139 (option D) | OPS-20140 (option E) | OPS-20141 (option F) | OPS-20142 (option G) |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Sensing distance | 50cm, 100cm | 2m, 50cm | 1.5m | 5m, 10m, 20m |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO/NC; PNP NO/NC |
| Supply voltage | 10...30 VDC | 10...30 VDC | 12...24 VDC | 10...30 VDC |
| Response time | DC: <1ms | DC: <0.5ms | DC: <1ms | DC: <1ms |
| Ambient temperature | -20°C...55°C | -20°C...55°C | -20°C...55°C | -25°C...55°C |
| Protection degree | IP65 | IP67 | IP40 | IP67 |
| Housing material | PC + PBT | ABS | PC/ABS | PC/ABS |
| Connection | Cable | Cable, M8 Trunk line type | Cable | Cable; M8 Connector |
| Certification | CE, UKCA | CE, UKCA | CE, UKCA | CE, UKCA |





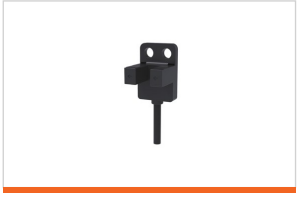

| ITEM NO. | OPS-20143 (option H) | OPS-20144 (option I) | OPS-20145 (option J) | OPS-20146 (option K) |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Sensing distance | 20m | 10m, 20m | 60m | 20m, 30m, 40m |
| Output DC 3-wire | — | NPN NO; NPN NC; PNP NO; PNP NC | — | — |
| Supply voltage | 10...30 VDC | 10...30 VDC; 24...240 VAC; 12...240 VDC | 10...30 VDC; 24...240 VAC/DC | 10...30 VDC; 24...240 VAC; 12...240 VDC |
| Response time | DC: <1ms | DC: <8.2ms; AC: <30ms | DC: <2ms; AC/DC: <10ms | DC: <8.2ms; AC: <30ms |
| Ambient temperature | -15°C...60°C | -15°C...55°C | -25°C...55°C | -15°C...55°C |
| Protection degree | IP67 | IP64 | IP67 | IP67 |
| Housing material | ABS | PC/ABS | PC/ABS | PC/ABS |
| Connection | Cable; M12 Connector | Cable; M12 Connector | Cable; M12 Connector | Terminal |
| Certification | CE, UKCA, UL | CE, UKCA | CE, UKCA | CE, UKCA |
| Output DC 4-wire | NPN NO/NC; PNP NO/NC | NPN NO+NC; PNP NO+NC | NPN+PNP NO/NC | NPN NO+NC; PNP NO+NC |
| Output AC/DC 5-wire | — | Relay output NO+NC | Relay output NO+NC | Relay output NO+NC |

## Through beam (slot type)





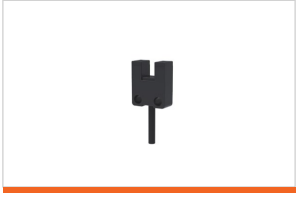

| ITEM NO. | OPS-20147 (option A) | OPS-20148 (option B) | OPS-20149 (option C) | OPS-20150 (option D) |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Sensing distance | 5mm | 5mm | 5mm | 5mm |
| Output DC 4-wire | NPN NO/NC; PNP NO/NC | NPN NO/NC; PNP NO/NC | NPN NO/NC; PNP NO/NC | NPN NO/NC; PNP NO/NC |
| Supply voltage | 5...24 VDC | 5...24 VDC | 5...24 VDC | 5...24 VDC |
| Response time | 0.5ms | 0.5ms | 0.5ms | 0.5ms |
| Ambient temperature | -25°C...55°C | -25°C...55°C | -25°C...55°C | -25°C...55°C |
| Protection degree | IP65 | IP65 | IP65 | IP65 |
| Housing material | PBT | PBT | PBT | PBT |
| Connection | Cable; Connector type | Cable; Connector type | Cable; Connector type | Cable; Connector type |
| Certification | CE, UKCA | CE, UKCA | CE, UKCA | CE, UKCA |



| ITEM NO. | OPS-20151 (option E) | OPS-20152 (option F) | OPS-20153 (option G) | OPS-20154 (option H) |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Sensing distance | 5mm | 5mm | 5mm | 5mm |
| Output DC 4-wire | NPN NO/NC; PNP NO/NC | NPN NO/NC; PNP NO/NC | NPN NO/NC; PNP NO/NC | NPN NO/NC; PNP NO/NC |
| Supply voltage | 5...24 VDC | 5...24 VDC | 5...24 VDC | 5...24 VDC |
| Response time | 0.5ms | 0.5ms | 0.5ms | 0.5ms |
| Ambient temperature | -25°C...55°C | -25°C...55°C | -25°C...55°C | -25°C...55°C |
| Protection degree | IP65 | IP65 | IP65 | IP65 |
| Housing material | PBT | PBT | PBT | PBT |
| Connection | Cable; Connector type | Cable; Connector type | Cable; Connector type | Cable; Connector type |
| Certification | CE, UKCA | CE, UKCA | CE, UKCA | CE, UKCA |






| ITEM NO. | OPS-20155 (option I) | OPS-20156 (option J) | OPS-20157 (option K) | OPS-20158 (option L) |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Sensing distance | 5mm | 5mm | 5mm | 7mm |
| Output DC 4-wire | NPN NO/NC; PNP NO/NC | NPN NO/NC; PNP NO/NC | NPN NO/NC; PNP NO/NC | — |
| Supply voltage | 5...24 VDC | 5...24 VDC | 5...24 VDC | 10...30 VDC |
| Response time | 0.5ms | 0.5ms | 0.5ms | DC: <1ms |

| ITEM NO. (cont.) | OPS-20155 (option I) | OPS-20156 (option J) | OPS-20157 (option K) | OPS-20158 (option L) |
|---|---|---|---|---|
| Ambient temperature | -25°C...55°C | -25°C...55°C | -25°C...55°C | -15°C...55°C |
| Protection degree | IP65 | IP65 | IP65 | IP64 |
| Housing material | PBT | PBT | PBT | PBT |
| Connection | Cable; Connector type | Cable; Connector type | Cable; Connector type | Cable |
| Certification | CE, UKCA | CE, UKCA | CE, UKCA | — |
| Output DC 3-wire | — | — | — | NPN NO; NPN NC; PNP NO; PNP NC |






| ITEM NO. | OPS-20159 (option M) | OPS-20160 (option N) | OPS-20161 (option O) | OPS-20162 (option P) |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Sensing distance | 13mm | 15mm | 30mm | 30mm |
| Output DC 4-wire | NPN NO/NC; PNP NO/NC | — | NPN NO/NC; PNP NO/NC | NPN NO+NC; PNP NO+NC |
| Supply voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC | 10...30 VDC |
| Response time | DC: <1ms | DC: <1ms | DC: <1ms | DC: <0.6ms |
| Ambient temperature | -15°C...55°C | -15°C...55°C | -15°C...55°C | -25°C...55°C |
| Protection degree | IP50 | IP64 | IP60 | IP67 |
| Housing material | PBT | PBT | Aluminum alloy + PC | PBT |
| Connection | Cable | Cable | Cable | Cable |
| Output DC 3-wire | — | NPN NO; NPN NC; PNP NO; PNP NC | — | — |

## Retro reflection



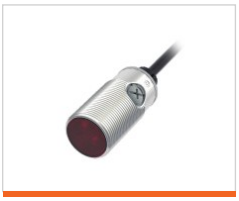




| ITEM NO. | OPS-20163 M18 barrel – Protection degree: IP67 | OPS-20164 M18 barrel – Protection degree: IP65 | OPS-20165 M30 barrel | OPS-20166 Sensing distance: 5m | OPS-20167 Sensing distance: 25cm |
|---|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each | Each |
| Sensing distance | 3m | 3m | 5m | 5m | 25cm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | — | NPN NO; NPN NC; PNP NO; PNP NC |
| Output DC 4-wire | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC | — |
| Output AC 2-wire | NO; NC | NO; NC | NO; NC | — | — |
| Supply voltage | 10...30 VDC; 20...250 VAC | 10...30 VDC; 20...250 VAC | 10...30 VDC; 20...250 VAC | 10...30 VDC; 24...240 VAC; 12...240 VDC | 10...30 VDC |
| Response time | DC: <8.2ms; AC: <50ms | DC: <8.2ms; AC: <50ms | DC: <8.2ms; AC: <50ms | DC: <8.2ms; AC: <30ms | DC: <0.5ms |
| Ambient temperature | -15°C...55°C | -15°C...55°C | -15°C...55°C | -15°C...55°C | -20°C...55°C |
| Protection degree | IP67 | IP65 | IP67 | IP67 | IP67 |
| Housing material | Nickel-copper Alloy, PBT | Nickel-copper Alloy, PBT | Nickel-copper Alloy, PBT | PC/ABS | ABS |
| Connection | Cable; M12 Connector | Cable; M12 Connector | Cable; M12 Connector | Terminal | Cable, M8 Trunk line type |

| ITEM NO. (cont.) | OPS-20163<br>M18 barrel – Protection degree: IP67 | OPS-20164<br>M18 barrel – Protection degree: IP65 | OPS-20165<br>M30 barrel | OPS-20166<br>Sensing distance: 5m | OPS-20167<br>Sensing distance: 25cm |
|---|---|---|---|---|---|
| Certification | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL | — | CE, UKCA |
| Output AC/DC 5-wire | — | — | — | Relay output NO+NC | — |

## Polarized reflection







| ITEM NO. | OPS-20168<br>(option A) | OPS-20169<br>(option B) | OPS-20170<br>(option C) | OPS-20171<br>(option D) | OPS-20172<br>(option E) |
|---|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each | Each |
| Sensing distance | 3m | 3m | 12m | 3m | 3m |
| Output DC 4-wire | NPN NO/NC; PNP NO/NC | NPN NO/NC; PNP NO/NC | NPN NO+NC; PNP NO+NC | NPN NO/NC; PNP NO/NC | — |
| Supply voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC; 24...240 VAC; 12...240 VDC | 10...30 VDC | 10...30 VDC |
| Response time | DC: ≤0.5ms | DC: ≤0.5ms | DC: <8.2ms; AC: <30ms | DC: <0.5ms | DC: <0.5ms |
| Ambient temperature | -25°C...55°C | -25°C...55°C | -15°C...55°C | -15°C...60°C | -25°C...55°C |
| Protection degree | IP67 | IP67 | IP67 | IP67 | IP67 |
| Housing material | Nickel-copper Alloy, PBT | PC/ABS | PC/ABS | ABS | PC/ABS |
| Connection | Cable; M12 Connector | Cable; M12 Connector | Terminal | Cable; M12 Connector | Cable; M8 Connector |
| Certification | CE, UKCA | CE, UKCA | CE, UKCA | CE, UKCA, UL | CE, UKCA |
| Output AC/DC 5-wire | — | — | Relay output NO+NC | — | — |
| Output DC 3-wire | — | — | — | — | NPN NO/NC; PNP NO/NC |

## Transparent object detection





| ITEM NO. | OPS-20173<br>(option A) | OPS-20174<br>(option B) | OPS-20175<br>(option C) |
|---|---|---|---|
| Unit of measure | Each | Each | Each |
| Sensing distance | 2m | 2m | 2m, 50cm |
| Output DC 4-wire | NPN NO/NC; PNP NO/NC | NPN NO/NC; PNP NO/NC | — |
| Supply voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC |
| Response time | DC: ≤0.5ms | DC: ≤0.5ms | DC: ≤0.5ms |
| Ambient temperature | -25°C...55°C | -25°C...55°C | -25°C...55°C |
| Protection degree | IP67 | IP67 | IP67 |
| Housing material | Nickel-copper Alloy | PC/ABS | PC/ABS |
| Connection | Cable; M12 Connector | Cable; M12 Connector | Cable; M8 Connector |
| Certification | CE, UKCA | CE, UKCA | CE, UKCA |
| Output DC 3-wire | — | — | NPN NO/NC; PNP NO/NC |

## Diffuse reflection







| ITEM NO. | OPS-20176<br>M12 barrel | OPS-20177<br>M18 barrel – Protection degree: IP67 | OPS-20178<br>M18 barrel – Protection degree: IP65 | OPS-20179<br>M30 barrel | OPS-20180<br>(option A) |
|---|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each | Each |
| Sensing distance | 15cm | 10cm, 40cm | 10cm, 40cm | 50cm, 100cm | 10cm, 40cm (infrared light); 40cm (red light), 100cm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | — |
| Supply voltage | 10...30 VDC | 10...30 VDC; 20...250 VAC | 10...30 VDC; 20...250 VAC | 10...30 VDC; 20...250 VAC | 10...30 VDC |
| Response time | DC: <8.2ms | DC: <8.2ms; AC: <50ms | DC: <8.2ms; AC: <50ms | DC: <8.2ms; AC: <50ms | DC: ≤0.5ms |
| Ambient temperature | -15°C...55°C | -15°C...55°C | -15°C...55°C | -15°C...55°C | -25°C...55°C |
| Protection degree | IP67 | IP67 | IP65 | IP67 | IP67 |
| Housing material | Nickel-copper Alloy, PBT | Nickel-copper Alloy, PBT | Nickel-copper Alloy, PBT | Nickel-copper Alloy, PBT | Nickel-copper Alloy |
| Connection | Cable; M12 Connector | Cable; M12 Connector | Cable; M12 Connector | Cable; M12 Connector | Cable; M12 Connector |
| Certification | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA, UL | CE, UKCA |
| Output DC 4-wire | — | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC | NPN NO+NC; PNP NO+NC | NPN NO/NC; PNP NO/NC |
| Output AC 2-wire | — | NO; NC | NO; NC | NO; NC | — |







| ITEM NO. | OPS-20181<br>(option B) | OPS-20182<br>(option C) | OPS-20183<br>(option D) | OPS-20184<br>(option E) | OPS-20185<br>(option F) |
|---|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each | Each |
| Sensing distance | 10cm, 40cm (infrared light); 40cm (red light), 100cm | 2m | 30cm, 10cm, 100cm | 50cm, 100cm | 30cm, 200cm |
| Output DC 3-wire | — | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO/NC; PNP NO/NC | NPN NO; NPN NC; PNP NO; PNP NC | — |
| Supply voltage | 10...30 VDC | 12...24 VDC | 10...30 VDC | 10...30 VDC; 24...240 VAC; 12...240 VDC | 10...30 VDC; 24...240 VAC/DC |
| Response time | DC: ≤0.5ms | DC: <3ms | DC: <0.5ms | DC: <8.2ms; AC: <30ms | DC: <2ms; AC/DC: <10ms |
| Ambient temperature | -25°C...55°C | -15°C...55°C | -25°C...55°C | -15°C...55°C | -25°C...55°C |
| Protection degree | IP67 | IP54 | IP67 | IP64 | IP67 |
| Housing material | PC/ABS | PC/ABS | PC/ABS | PC/ABS | PC/ABS |
| Connection | Cable; M12 Connector | Cable | Cable; M8 Connector | Cable; M12 Connector | Cable; M12 Connector |
| Certification | CE, UKCA | — | CE, UKCA | CE, UKCA | CE, UKCA |
| Output DC 4-wire | NPN NO/NC; PNP NO/NC | — | — | NPN NO+NC; PNP NO+NC | NPN+PNP NO/NC |
| Output AC/DC 5-wire | — | — | — | Relay output NO+NC | Relay output NO+NC |





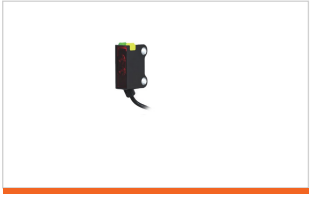
| ITEM NO. | OPS-20186 (option G) | OPS-20187 (option H) | OPS-20188 (option I) |
|---|---|---|---|
| Unit of measure | Each | Each | Each |
| Sensing distance | 80cm, 200cm | 30cm | 10cm |
| Output DC 3-wire | — | — | NPN NO; NPN NC; PNP NO; PNP NC |
| Supply voltage | 10...30 VDC; 24...240 VAC; 12...240 VDC | 10...30 VDC | 10...30 VDC |
| Response time | DC: <8.2ms; AC: <30ms | DC: <0.5ms | DC: <1ms |
| Ambient temperature | -15°C...55°C | -15°C...60°C | -20°C...55°C |
| Protection degree | IP67 | IP67 | IP65 |
| Housing material | PC/ABS | ABS | PC + PBT |
| Connection | Terminal | Cable; M12 Connector | Cable |
| Certification | — | CE, UKCA, UL | CE, UKCA |
| Output DC 4-wire | NPN NO+NC; PNP NO+NC | NPN NO/NC; PNP NO/NC | — |
| Output AC/DC 5-wire | Relay output NO+NC | — | — |

## Background suppression



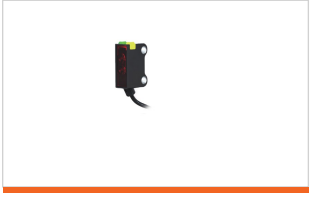


| ITEM NO. | OPS-20189 (option A) | OPS-20190 (option B) | OPS-20191 (option C) | OPS-20192 (option D) |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Sensing distance | 10cm | 10cm | 5cm (background suppression) | 25cm, 35cm |
| Output DC 4-wire | NPN NO/NC; PNP NO/NC | NPN NO/NC; PNP NO/NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO/NC; PNP NO/NC |
| Supply voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC | 10...30 VDC |
| Response time | DC: ≤0.5ms | DC: ≤0.5ms | DC: ≤0.5ms | DC: ≤1ms |
| Ambient temperature | -25°C...55°C | -25°C...55°C | -25°C...55°C | -25°C...55°C |
| Protection degree | IP67 | IP67 | IP67 | IP67 |
| Housing material | Nickel-copper Alloy | PC/ABS | PC + ABS | PC + ABS |
| Connection | Cable; M12 Connector | Cable; M12 Connector | Cable; M8 Connector | Cable; M8 Connector |
| Certification | CE, UKCA | CE, UKCA | CE, UKCA | CE, UKCA |


| ITEM NO. | OPS-20193 (option E) | OPS-20194 (option F) | OPS-20195 (option G) |
|---|---|---|---|
| Unit of measure | Each | Each | Each |
| Sensing distance | 10cm | 8cm, 10cm, 15cm, 30cm | 30mm |
| Output DC 4-wire | NPN NO/NC; PNP NO/NC | — | — |
| Supply voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC |
| Response time | DC: <0.5ms | DC: <1ms | DC: <1ms |
| Ambient temperature | -15°C...60°C | -20°C...55°C | -20°C...55°C |
| Protection degree | IP67 | IP67 | IP65 |
| Housing material | ABS | ABS | PC + PBT |
| Connection | Cable; M12 Connector | Cable, M8 Trunk line type | Cable |
| Certification | CE, UKCA, UL | CE, UKCA | CE, UKCA |
| Output DC 3-wire | — | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC |

## Focus reflection





| ITEM NO. | OPS-20196 Housing material: ABS | OPS-20197 Housing material: PC + PBT | OPS-20198 Housing material: PC + ABS |
|---|---|---|---|
| Unit of measure | Each | Each | Each |
| Sensing distance | 25mm | 25mm | 5cm |
| Output DC 3-wire | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO; NPN NC; PNP NO; PNP NC | NPN NO/NC; PNP NO/NC |
| Supply voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC |
| Response time | DC: <0.5ms | DC: <1ms | DC: <0.5ms |
| Ambient temperature | -20°C...55°C | -20°C...55°C | -25°C...55°C |
| Protection degree | IP67 | IP65 | IP67 |
| Housing material | ABS | PC + PBT | PC + ABS |
| Connection | Cable, M8 Trunk line type | Cable | Cable; M8 Connector |
| Certification | CE, UKCA | CE, UKCA | CE, UKCA |

## TOF reflection





| ITEM NO. | OPS-20199<br>Sensing distance: 60cm, 1m, 3m | OPS-20200<br>Sensing distance: 3m |
|---|---|---|
| Unit of measure | Each | Each |
| Sensing distance | 60cm, 1m, 3m | 3m |
| Supply voltage | 10...30 VDC | 10...30 VDC |
| Response time | 35ms | 35ms |
| Ambient temperature | -20°C...55°C | -20°C...55°C |
| Protection degree | IP67 | IP67 |
| Housing material | PC + ABS | PC + ABS |
| Connection | M8 Connector; 2m PVC Cable | 0.5m PVC Cable |
| Output DC 3-wire | — | NPN NO/NC; PNP NO/NC |
| Output DC 4-wire | — | RS485 |

## Mark sensors





| ITEM NO. | OPS-20201<br>Sensing distance: 10±2mm | OPS-20202<br>Sensing distance: 18...28mm |
|---|---|---|
| Unit of measure | Each | Each |
| Sensing distance | 10±2mm | 18...28mm |
| Response time | 1ms | <200μs |
| Output | NPN NO/NC; PNP NO/NC | NPN/PNP |
| Supply voltage | 12...24 VDC | 24VDC ±10%, ripple P-P <10% |
| Light source | Red light / green light, white light / blue light | Composite LED: Red/Green/Blue (wavelength 640nm/525nm/470nm) |
| Withstanding voltage | 1000V/AC 50/60Hz 60s | 1000V/AC 50/60Hz 60s |
| Insulation resistance | ≥50MΩ (500VDC) | ≥50MΩ (500VDC) |
| Anti-vibration | 10...50Hz, repeat amplitude 1.5mm (2 hours each for x, y, z direction) | 10...50Hz, repeat amplitude 1.5mm (2 hours each for x, y, z direction) |
| Ambient temperature | -25°C...55°C | -10°C...55°C (no frost, no condensation) |
| Protection degree | IP65 | IP65 |
| Housing material | PBT | PBT |
| Connection | Cable | Cable |

## Optical fiber sensors





| ITEM NO. | OPS-20203<br>Output: NPN + PNP NO/NC | OPS-20204<br>Output: NPN NO/NC; PNP NO/NC | OPS-20205<br>Output: NPN; PNP |
|---|---|---|---|
| Unit of measure | Each | Each | Each |
| Sensing distance | Depends on fiber type | Depends on fiber type | Depends on fiber type |
| Response time | <1ms | <200μs (FINE); <300μs (TURBO); <550μs (SUPER) | 50μs |
| Output | NPN + PNP NO/NC | NPN NO/NC; PNP NO/NC | NPN; PNP |
| Supply voltage | 10...30 VDC | 12...24 VDC | 12...24 VDC |
| Illumination intensity | Incandescent lamp: 3,000 lux | Incandescent lamp: 3,000 lux | Incandescent lamp: 3,000 lux |
| Withstanding voltage | AC 1,000V, 1 minute, 50/60Hz | AC 1,000V, 1 minute, 50/60Hz | AC 1,000V, 1 minute, 50/60Hz |
| Insulation resistance | >50MΩ (DC500V megger) | >50MΩ (DC500V megger) | >50MΩ (DC500V megger) |
| Anti-vibration | 10...55Hz, amplitude 1mm (2 hours each for x, y, z direction) | 10...55Hz, amplitude 1mm (2 hours each for x, y, z direction) | 10...55Hz, amplitude 1mm (2 hours each for x, y, z direction) |
| Anti-concussion | Acceleration 500m/s² (approx. 30G), 3 times each for x, y and z direction | Acceleration 500m/s² (approx. 30G), 3 times each for x, y and z direction | Acceleration 500m/s² (approx. 30G), 3 times each for x, y and z direction |
| Ambient temperature | 0°C...55°C (no dew or ice) | 0°C...55°C (no dew or ice) | -20°C...55°C (no freezing) |
| Ambient humidity | 35...85% RH | 35...85% RH | 35...85% RH |
| Protection degree | IP54 | IP54 | IP54 |
| Housing material | PC + ABS | PC + ABS | PC |
| Connection | Cable | Cable | Cable |

## Optical fiber cables, reflective




| ITEM NO. | OPS-20206<br>M6 head – Sensing distance: 100mm | OPS-20207<br>M6 head – Sensing distance: 90mm | OPS-20208<br>M4 head – Sensing distance: 60mm |
|---|---|---|---|
| Unit of measure | Each | Each | Each |
| Dimensions | M6 | M6 | M4 |
| Min bending radius | R25 | R25 | R15 |
| Sensing distance, OPS-20203 fiber optic amplifier | 100mm | 90mm | 60mm |
| Sensing distance, OPS-20204 fiber optic amplifier | FINE: 110mm; TURBO: 190mm; SUPER: 290mm | FINE: 80mm; TURBO: 170mm; SUPER: 280mm | FINE: 40mm; TURBO: 90mm; SUPER: 240mm |
| Min detected target | Φ0.2mm | Φ0.1mm | Φ0.1mm |




| ITEM NO. | OPS-20209<br>M4 head – Sensing distance: 40mm | OPS-20210<br>M3 head – Min detected target: Φ0.1mm | OPS-20211<br>M3 head – Min detected target: Φ0.05mm |
|---|---|---|---|
| Unit of measure | Each | Each | Each |
| Dimensions | M4 | M3 | M3 |
| Min bending radius | R15 | R15 | R15 |
| Sensing distance, OPS-20203 fiber optic amplifier | 40mm | 40mm | 40mm |
| Sensing distance, OPS-20204 fiber optic amplifier | FINE: 40mm; TURBO: 70mm; SUPER: 160mm | FINE: 40mm; TURBO: 70mm; SUPER: 120mm | FINE: 40mm; TURBO: 80mm; SUPER: 120mm |
| Min detected target | Φ0.1mm | Φ0.1mm | Φ0.05mm |

## Optical fiber cables, through-beam





| ITEM NO. | OPS-20212<br>M6 head | OPS-20213<br>M4 head | OPS-20214<br>M3 head |
|---|---|---|---|
| Unit of measure | Each | Each | Each |
| Dimensions | M6 | M4 | M3 |
| Min bending radius | R25 | R25 | R2 |
| Sensing distance, OPS-20203 fiber optic amplifier | 280mm | 250mm | 200mm |
| Sensing distance, OPS-20204 fiber optic amplifier | FINE: 300mm; TURBO: 500mm; SUPER: 800mm | FINE: 300mm; TURBO: 500mm; SUPER: 800mm | FINE: 200mm; TURBO: 400mm; SUPER: 700mm |
| Min detected target | Φ0.5mm | Φ0.5mm | Φ0.5mm |





| ITEM NO. | OPS-20215<br>Sensing distance (OPS-20205 fiber optic amplifier): 700...1200mm | OPS-20216<br>Sensing distance (OPS-20205 fiber optic amplifier): 1400...2000mm | OPS-20217<br>Sensing distance (OPS-20205 fiber optic amplifier): 1...25mm |
|---|---|---|---|
| Unit of measure | Each | Each | Each |
| Dimensions | Detection area 2×11 | Detection area 3×40 | — |
| Min bending radius | R2 | R2 | R5 |
| Sensing distance (OPS-20205 fiber optic amplifier) | 700...1200mm | 1400...2000mm | 1...25mm |

## Optical fiber cables, flexible





| ITEM NO. | OPS-20218<br>M6 head – Sensing distance: 15 / 30 / 45mm | OPS-20219<br>M4 head – Sensing distance: 35 / 110 / 200mm | OPS-20220<br>M4 head – Sensing distance: 150 / 500 / 2000mm | OPS-20221<br>M6 head – Sensing distance: 150 / 500 / 2000mm |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Dimensions | M6 | M4 | M4 | M6 |
| Min bending radius | R2 | R2 | R2 | R2 |
| Sensing distance | 15 / 30 / 45mm | 35 / 110 / 200mm | 150 / 500 / 2000mm | 150 / 500 / 2000mm |

## Color sensors, amplifier



| ITEM NO. | OPS-20222 |
|---|---|
| Unit of measure | Each |
| Response time | 200µs (HIGH SPEED) / 1ms (FINE) / 4ms (TURBO) / 8ms (SUPER) |
| Control output | NPN (PNP) open collector x4 channels, max 40VDC (30VDC); 1 output reaches 100mA, total of 4 outputs reach 200mA; residual voltage: 1V max |
| Output | NPN, PNP |
| Supply voltage | 24VDC, ripple (P-P) <10% |
| Consumption current | Normal mode: 1.5W (≤62.5mA); Eco mode: 1W (≤42mA) |
| Timer function | Timer OFF / OFF-delay / ON-delay / single trigger; timer time adjustable from 1 to 1,000 (for each domain separately) |
| Ambient temperature | -10°C...55°C (no condensation) |
| Circuit protection | Short-circuit protection, reverse polarity protection, Zener protection |
| Vibration resistance | 10...55Hz, double amplitude 1.5mm (2 hours each in X, Y, Z directions) |

## Color sensors, detection head



| ITEM NO. | OPS-20223 |
|---|---|
| Unit of measure | Each |
| Examination range | 11...20mm |
| Min spot diameter | 1mm @ 16mm |
| Min bending radius | R25mm |
| Light source | Composite LED: Red/Green/Blue (wavelength 665nm/520nm/465nm) |
| Ambient luminosity | Incandescent: max 1,000 lux; daylight: max 20,000 lux |
| Protection degree | IP40 |
| Housing material | Body: PC; lens cover: polyarylate |
| Connection | 2m PVC cable |

KRONOS INDUSTRIES

# Laser & Measuring Sensors

32 items

info@kronosindustries.ca

## Digital laser distance sensors



| ITEM NO. | OPS-20224 (option A) | OPS-20225 (option B) | OPS-20226 (option C) | OPS-20227 (option D) |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Light source | Red laser (650nm) | Red laser (650nm) | Red laser (650nm) | Red laser (650nm) |
| Laser class | Class 2 | Class 2 | Class 2 | Class 2 |
| Spot diameter | 1mm*3mm @ 100mm | 1mm*3mm @ 100mm | 1mm*3mm @ 100mm | 1mm*3mm @ 100mm |
| Measuring range | 30...100mm | 30...100mm | 30...100mm | 30...100mm |
| Linear accuracy | RS-485: ±0.3% F.S. | 4...20mA: ±0.4% F.S. | RS-485: ±0.1% F.S. | 4...20mA: ±0.1% F.S. |
| Repeat accuracy | 10μm @ 30mm; 30μm @ 50mm; 100μm @ 100mm | 10μm @ 30mm; 30μm @ 50mm; 100μm @ 100mm | 10μm @ 30mm; 30μm @ 50mm; 100μm @ 100mm | 10μm @ 30mm; 30μm @ 50mm; 100μm @ 100mm |
| Resolution | 5μm @ 30mm; 50μm @ 100mm | 5μm @ 30mm; 50μm @ 100mm | 5μm @ 30mm; 50μm @ 100mm | 5μm @ 30mm; 50μm @ 100mm |
| Supply voltage | 10...30 VDC | 12...24 VDC | 10...30 VDC | 12...24 VDC |
| Voltage drop | <2.5V | <2.5V | <2.5V | <2.5V |
| Power consumption | ≤700mW | ≤700mW | ≤700mW | ≤700mW |
| Load current | 200mA | 200mA | 200mA | 200mA |
| Circuit protection | Short circuit, reverse polarity, overload protection | Short circuit, reverse polarity, overload protection | Short circuit, reverse polarity, overload protection | Short circuit, reverse polarity, overload protection |
| Output | RS-485 (supports Modbus protocol) | 4...20mA (load resistance <390Ω) | RS-485 (supports Modbus protocol) | 4...20mA (load resistance <390Ω) |
| Integrated functions | Slave address, port rate setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting | Slave address, port rate setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting | Slave address, port rate setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting | Slave address, port rate setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting |
| Indicator | Power: green LED; action: yellow LED; alarm: yellow LED | Power: green LED; action: yellow LED; alarm: yellow LED | Power: green LED; action: yellow LED; alarm: yellow LED | Power: green LED; action: yellow LED; alarm: yellow LED |
| Ambient temperature | -10°C...50°C | -10°C...50°C | -10°C...50°C | -10°C...50°C |
| Temperature drift | ±0.02% F.S./°C | ±0.02% F.S./°C | ±0.02% F.S./°C | ±0.02% F.S./°C |
| Response time | 2ms / 16ms / 40ms (configurable) | 2ms / 16ms / 40ms (configurable) | 2ms / 16ms / 40ms (configurable) | 2ms / 16ms / 40ms (configurable) |
| Ambient humidity | 35...85% RH (no condensation) | 35...85% RH (no condensation) | 35...85% RH (no condensation) | 35...85% RH (no condensation) |
| Anti-ambient light | Incandescent light: <3,000 lux | Incandescent light: <3,000 lux | Incandescent light: <3,000 lux | Incandescent light: <3,000 lux |
| Impulse withstand | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction |
| Vibration resistance | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions |
| Protection degree | IP67 | IP67 | IP67 | IP67 |
| Material | Housing: aluminum; lens cover: PMMA; display panel: PC | Housing: aluminum; lens cover: PMMA; display panel: PC | Housing: aluminum; lens cover: PMMA; display panel: PC | Housing: aluminum; lens cover: PMMA; display panel: PC |
| Dimensions | 65*51*23mm | 65*51*23mm | 65*51*23mm | 65*51*23mm |
| Connection | 2m 5-pin PVC cable | 2m 4-pin PVC cable | 2m 5-pin PVC cable | 2m 4-pin PVC cable |



| ITEM NO. | OPS-20228 (option E) | OPS-20229 (option F) | OPS-20230 (option G) | OPS-20231 (option H) |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Light source | Red laser (650nm) | Red laser (650nm) | Red laser (650nm) | Red laser (650nm) |
| Laser class | Class 2 | Class 2 | Class 2 | Class 2 |
| Spot diameter | Φ2.5mm @ 500mm | Φ2.5mm @ 500mm | Φ2.5mm @ 500mm | Φ2.5mm @ 500mm |
| Measuring range | 80...500mm | 80...500mm | 80...500mm | 80...500mm |
| Linear accuracy | RS-485: ±0.3% F.S. | 4...20mA: ±0.4% F.S. | RS-485: ±0.15% F.S. (80...250mm); ±0.3% F.S. (250...500mm) | 4...20mA: ±0.15% F.S. (80...250mm); ±0.3% F.S. (250...500mm) |
| Repeat accuracy | 30μm @ 80mm; 250μm @ 250mm; 1000μm @ 500mm | 30μm @ 80mm; 250μm @ 250mm; 1000μm @ 500mm | 30μm @ 80mm; 250μm @ 250mm; 1000μm @ 500mm | 30μm @ 80mm; 250μm @ 250mm; 1000μm @ 500mm |
| Resolution | 15μm @ 80mm; 500μm @ 500mm | 15μm @ 80mm; 500μm @ 500mm | 15μm @ 80mm; 500μm @ 500mm | 15μm @ 80mm; 500μm @ 500mm |
| Supply voltage | 10...30 VDC | 12...24 VDC | 10...30 VDC | 12...24 VDC |
| Voltage drop | <2.5V | <2.5V | <2.5V | <2.5V |
| Power consumption | ≤700mW | ≤700mW | ≤700mW | ≤700mW |
| Load current | 200mA | 200mA | 200mA | 200mA |
| Circuit protection | Short circuit, reverse polarity, overload protection | Short circuit, reverse polarity, overload protection | Short circuit, reverse polarity, overload protection | Short circuit, reverse polarity, overload protection |
| Output | RS-485 (supports Modbus protocol) | 4...20mA (load resistance <390Ω) | RS-485 (supports Modbus protocol) | 4...20mA (load resistance <390Ω) |
| Integrated functions | Slave address, port rate setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting | Slave address, port rate setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting | Slave address, port rate setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting | Slave address, port rate setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting |
| Indicator | Power: green LED; action: yellow LED; alarm: yellow LED | Power: green LED; action: yellow LED; alarm: yellow LED | Power: green LED; action: yellow LED; alarm: yellow LED | Power: green LED; action: yellow LED; alarm: yellow LED |
| Ambient temperature | -10°C...50°C | -10°C...50°C | -10°C...50°C | -10°C...50°C |
| Temperature drift | ±0.02% F.S./°C | ±0.02% F.S./°C | ±0.02% F.S./°C | ±0.02% F.S./°C |
| Response time | 2ms / 16ms / 40ms (configurable) | 2ms / 16ms / 40ms (configurable) | 2ms / 16ms / 40ms (configurable) | 2ms / 16ms / 40ms (configurable) |
| Ambient humidity | 35...85% RH (no condensation) | 35...85% RH (no condensation) | 35...85% RH (no condensation) | 35...85% RH (no condensation) |
| Anti-ambient light | Incandescent light: <3,000 lux | Incandescent light: <3,000 lux | Incandescent light: <3,000 lux | Incandescent light: <3,000 lux |
| Impulse withstand | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction |
| Vibration resistance | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions |
| Protection degree | IP67 | IP67 | IP67 | IP67 |
| Material | Housing: aluminum; lens cover: PMMA; display panel: PC | Housing: aluminum; lens cover: PMMA; display panel: PC | Housing: aluminum; lens cover: PMMA; display panel: PC | Housing: aluminum; lens cover: PMMA; display panel: PC |
| Dimensions | 65*51*23mm | 65*51*23mm | 65*51*23mm | 65*51*23mm |
| Connection | 2m 5-pin PVC cable | 2m 4-pin PVC cable | 2m 5-pin PVC cable | 2m 4-pin PVC cable |



| ITEM NO. | OPS-20232 (option I) | OPS-20233 (option J) | OPS-20234 (option K) | OPS-20235 (option L) |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Light source | Red laser (650nm) | Red laser (650nm) | Red laser (650nm) | Red laser (650nm) |
| Laser class | Class 2 | Class 2 | Class 2 | Class 2 |
| Spot diameter | Φ3mm @ 1000mm | Φ3mm @ 1000mm | Φ3mm @ 1000mm | Φ3mm @ 1000mm |
| Measuring range | 150...1000mm | 150...1000mm | 150...1000mm | 150...1000mm |
| Linear accuracy | RS-485: ±0.6% F.S. | 4...20mA: ±0.6% F.S. | RS-485: ±0.3% F.S. (150...450mm); ±0.6% F.S. (450...1000mm) | 4...20mA: ±0.3% F.S. (150...450mm); ±0.6% F.S. (450...1000mm) |
| Repeat accuracy | 100μm @ 150mm; 520μm @ 500mm; 4000μm @ 1000mm | 100μm @ 150mm; 520μm @ 500mm; 4000μm @ 1000mm | 100μm @ 150mm; 520μm @ 500mm; 4000μm @ 1000mm | 100μm @ 150mm; 520μm @ 500mm; 4000μm @ 1000mm |
| Resolution | 50μm @ 150mm; 2000μm @ 1000mm | 50μm @ 150mm; 2000μm @ 1000mm | 50μm @ 150mm; 2000μm @ 1000mm | 50μm @ 150mm; 2000μm @ 1000mm |
| Supply voltage | 10...30 VDC | 12...24 VDC | 10...30 VDC | 12...24 VDC |
| Voltage drop | <2.5V | <2.5V | <2.5V | <2.5V |
| Power consumption | ≤700mW | ≤700mW | ≤700mW | ≤700mW |
| Load current | 200mA | 200mA | 200mA | 200mA |
| Circuit protection | Short circuit, reverse polarity, overload protection | Short circuit, reverse polarity, overload protection | Short circuit, reverse polarity, overload protection | Short circuit, reverse polarity, overload protection |
| Output | RS-485 (supports Modbus protocol) | 4...20mA (load resistance <390Ω) | RS-485 (supports Modbus protocol) | 4...20mA (load resistance <390Ω) |
| Integrated functions | Slave address, port rate setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting | Slave address, port rate setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting | Slave address, port rate setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting | Slave address, port rate setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting |
| Indicator | Power: green LED; action: yellow LED; alarm: yellow LED | Power: green LED; action: yellow LED; alarm: yellow LED | Power: green LED; action: yellow LED; alarm: yellow LED | Power: green LED; action: yellow LED; alarm: yellow LED |
| Ambient temperature | -10°C...50°C | -10°C...50°C | -10°C...50°C | -10°C...50°C |
| Temperature drift | ±0.02% F.S./°C | ±0.02% F.S./°C | ±0.02% F.S./°C | ±0.02% F.S./°C |
| Response time | 2ms / 16ms / 40ms (configurable) | 2ms / 16ms / 40ms (configurable) | 2ms / 16ms / 40ms (configurable) | 2ms / 16ms / 40ms (configurable) |
| Ambient humidity | 35...85% RH (no condensation) | 35...85% RH (no condensation) | 35...85% RH (no condensation) | 35...85% RH (no condensation) |
| Anti-ambient light | Incandescent light: <3,000 lux | Incandescent light: <3,000 lux | Incandescent light: <3,000 lux | Incandescent light: <3,000 lux |
| Impulse withstand | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction |
| Vibration resistance | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions |
| Protection degree | IP67 | IP67 | IP67 | IP67 |
| Material | Housing: aluminum; lens cover: PMMA; display panel: PC | Housing: aluminum; lens cover: PMMA; display panel: PC | Housing: aluminum; lens cover: PMMA; display panel: PC | Housing: aluminum; lens cover: PMMA; display panel: PC |
| Dimensions | 65*51*23mm | 65*51*23mm | 65*51*23mm | 65*51*23mm |
| Connection | 2m 5-pin PVC cable | 2m 4-pin PVC cable | 2m 5-pin PVC cable | 2m 4-pin PVC cable |

## Laser distance sensors




| ITEM NO. | OPS-20236<br>Linear accuracy: RS-485: ±0.3% F.S. | OPS-20237<br>Linear accuracy: 4...20mA: ±0.4% F.S. |
|---|---|---|
| Unit of measure | Each | Each |
| Light source | Red laser (650nm) | Red laser (650nm) |
| Laser class | Class 2 | Class 2 |
| Spot diameter | Φ2.5mm @ 500mm | Φ2.5mm @ 500mm |
| Measuring range | 80...500mm | 80...500mm |
| Linear accuracy | RS-485: ±0.3% F.S. | 4...20mA: ±0.4% F.S. |
| Repeat accuracy | 30μm @ 80mm; 250μm @ 250mm; 1000μm @ 500mm | 30μm @ 80mm; 250μm @ 250mm; 1000μm @ 500mm |
| Resolution | 15μm @ 80mm; 500μm @ 500mm | 15μm @ 80mm; 500μm @ 500mm |
| Supply voltage | 10...30 VDC | 12...24 VDC |
| Voltage drop | <2.5V | <2.5V |
| Power consumption | ≤700mW | ≤700mW |
| Load current | 200mA | 200mA |
| Circuit protection | Short circuit, reverse polarity, overload protection | Short circuit, reverse polarity, overload protection |
| Output | RS-485 (supports Modbus protocol) | 4...20mA (load resistance <390Ω) |
| Integrated functions | Slave address, port rate setting; product self-check; output setting; average setting; parameter query; single point teach; window teach; window teach-in setting | Slave address, port rate setting; product self-check; output setting; average setting; parameter query; single point teach; window teach; window teach-in setting |
| Indicator | Power: green LED; action: yellow LED; alarm: yellow LED | Power: green LED; action: yellow LED; alarm: yellow LED |
| Ambient temperature | -10°C...50°C | -10°C...50°C |
| Temperature drift | ±0.02% F.S./°C | ±0.02% F.S./°C |
| Response time | 2ms / 16ms / 40ms (configurable) | 2ms / 16ms / 40ms (configurable) |
| Ambient humidity | 35...85% RH (no condensation) | 35...85% RH (no condensation) |
| Anti-ambient light | Incandescent light: <3,000 lux | Incandescent light: <3,000 lux |
| Impulse withstand | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction |
| Vibration resistance | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions |
| Protection degree | IP67 | IP67 |
| Material | Housing: ABS; lens cover: PMMA | Housing: ABS; lens cover: PMMA |
| Dimensions | 65*51*23mm | 65*51*23mm |
| Connection | 2m 5-pin PVC cable | 2m 4-pin PVC cable |

## Laser distance sensors (TOF)



| ITEM NO. | OPS-20238<br>Supply voltage: 10...30 VDC | OPS-20239<br>Supply voltage: 12...30 VDC |
|---|---|---|
| Unit of measure | Each | Each |
| Measuring range | 0.1...8m (90% white card) | 0.1...8m (90% white card) |
| Light source | Infrared laser (850nm) | Infrared laser (850nm) |
| Laser class | Class 3 | Class 3 |
| Spot diameter | 90*90mm (at 5m) | 90*90mm (at 5m) |
| Working principle | TOF | TOF |
| Repeat accuracy | ±1% | ±1% |
| Linear accuracy | ±1% F.S. | ±1% F.S. |
| Resolution | 1mm | 1mm |
| Supply voltage | 10...30 VDC | 12...30 VDC |
| Voltage drop | <2.5V | <2.5V |
| Consumption current | ≤70mA | ≤70mA |
| Load current | 200mA | 200mA |
| Circuit protection | Short circuit, reverse polarity | Short circuit, reverse polarity |
| Impulse frequency | 4KHz | 4KHz |
| Testing frequency | 100Hz | 100Hz |
| Impulse duration | 200μs | 200μs |
| Average optical power | 20mW | 20mW |
| Output | RS-485 (supports Modbus protocol); button / RS-485 setting | 4...20mA (load resistance <390Ω); button setting |
| Integrated functions | Button lock / unlock, action point setting, output setting, average setting, single point teach, window teach mode setting, output curve up/down, factory data reset | Button lock / unlock, action point setting, output setting, average setting, single point teach, window teach mode setting, output curve up/down, factory data reset |
| Indicator | Power: green LED; action: orange LED | Power: green LED; action: orange LED |
| Ambient temperature | -10°C...50°C | -10°C...50°C |
| Anti-ambient light | <20,000 lux | <20,000 lux |
| Impulse withstand | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction |
| Vibration resistance | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions |
| Protection degree | IP67 | IP67 |
| Material | Housing: ABS; lens cover: PMMA | Housing: ABS; lens cover: PMMA |
| Dimensions | 65*51*23mm | 65*51*23mm |
| Connection | 2m 5-pin PVC cable | 2m 4-pin PVC cable |

## Digital laser displacement sensors



| ITEM NO. | OPS-20240 (option A) | OPS-20241 (option B) | OPS-20242 (option C) | OPS-20243 (option D) |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Measuring center distance | 30mm | 30mm | 30mm | 30mm |
| Measuring range | ±5mm | ±5mm | ±5mm | ±5mm |
| Light source | Red laser (650nm) | Red laser (650nm) | Red laser (650nm) | Red laser (650nm) |
| Laser class | Class 2 | Class 2 | Class 2 | Class 2 |
| Spot diameter | Φ0.5mm @ 30mm | Φ0.5mm @ 30mm | Φ0.5mm @ 30mm | Φ0.5mm @ 30mm |
| Linear accuracy | RS-485: ±0.3% F.S. | 4...20mA: ±0.4% F.S. | RS-485: ±0.1% F.S. | 4...20mA: ±0.1% F.S. |
| Repeat accuracy | 5μm | 5μm | 5μm | 5μm |
| Resolution | 2.5μm @ 30mm | 2.5μm @ 30mm | 2.5μm @ 30mm | 2.5μm @ 30mm |
| Supply voltage | 10...30 VDC | 12...24 VDC | 10...30 VDC | 12...24 VDC |
| Voltage drop | <2.5V | <2.5V | <2.5V | <2.5V |
| Power consumption | ≤700mW | ≤700mW | ≤700mW | ≤700mW |
| Load current | 200mA | 200mA | 200mA | 200mA |
| Circuit protection | Short circuit, reverse polarity, overload protection | Short circuit, reverse polarity, overload protection | Short circuit, reverse polarity, overload protection | Short circuit, reverse polarity, overload protection |
| Output | RS-485 (supports Modbus protocol) | 4...20mA (load resistance <390Ω) | RS-485 (supports Modbus protocol) | 4...20mA (load resistance <390Ω) |
| Integrated functions | Slave address, port rate setting; zero setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting | Slave address, port rate setting; zero setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting | Slave address, port rate setting; zero setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting | Slave address, port rate setting; zero setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting |
| Indicator | Power: green LED; action: yellow LED; alarm: yellow LED | Power: green LED; action: yellow LED; alarm: yellow LED | Power: green LED; action: yellow LED; alarm: yellow LED | Power: green LED; action: yellow LED; alarm: yellow LED |
| Ambient temperature | -10°C...50°C | -10°C...50°C | -10°C...50°C | -10°C...50°C |
| Temperature drift | ±0.08% F.S./°C | ±0.08% F.S./°C | ±0.08% F.S./°C | ±0.08% F.S./°C |
| Response time | 2ms / 16ms / 40ms (configurable) | 2ms / 16ms / 40ms (configurable) | 2ms / 16ms / 40ms (configurable) | 2ms / 16ms / 40ms (configurable) |
| Ambient humidity | 35...85% RH (no condensation) | 35...85% RH (no condensation) | 35...85% RH (no condensation) | 35...85% RH (no condensation) |
| Anti-ambient light | Incandescent light: <3,000 lux | Incandescent light: <3,000 lux | Incandescent light: <3,000 lux | Incandescent light: <3,000 lux |
| Impulse withstand | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction |
| Vibration resistance | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions |
| Protection degree | IP67 | IP67 | IP67 | IP67 |
| Material | Housing: aluminum; lens cover: PMMA; display panel: PC | Housing: aluminum; lens cover: PMMA; display panel: PC | Housing: aluminum; lens cover: PMMA; display panel: PC | Housing: aluminum; lens cover: PMMA; display panel: PC |
| Dimensions | 65*51*23mm | 65*51*23mm | 65*51*23mm | 65*51*23mm |
| Connection | 2m 5-pin PVC cable | 2m 4-pin PVC cable | 2m 5-pin PVC cable | 2m 4-pin PVC cable |



| ITEM NO. | OPS-20244 (option E) | OPS-20245 (option F) | OPS-20246 (option G) | OPS-20247 (option H) |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Measuring center distance | 50mm | 50mm | 50mm | 50mm |
| Measuring range | ±15mm | ±15mm | ±15mm | ±15mm |
| Light source | Red laser (650nm) | Red laser (650nm) | Red laser (650nm) | Red laser (650nm) |
| Laser class | Class 2 | Class 2 | Class 2 | Class 2 |
| Spot diameter | Φ0.5mm @ 50mm | Φ0.5mm @ 50mm | Φ0.5mm @ 50mm | Φ0.5mm @ 50mm |
| Linear accuracy | RS-485: ±0.3% F.S. | 4...20mA: ±0.4% F.S. | RS-485: ±0.1% F.S. | 4...20mA: ±0.1% F.S. |
| Repeat accuracy | 20μm | 20μm | 20μm | 20μm |
| Resolution | 10μm @ 50mm | 10μm @ 50mm | 10μm @ 50mm | 10μm @ 50mm |
| Supply voltage | 10...30 VDC | 12...24 VDC | 10...30 VDC | 12...24 VDC |
| Voltage drop | <2.5V | <2.5V | <2.5V | <2.5V |
| Power consumption | ≤700mW | ≤700mW | ≤700mW | ≤700mW |
| Load current | 200mA | 200mA | 200mA | 200mA |
| Circuit protection | Short circuit, reverse polarity, overload protection | Short circuit, reverse polarity, overload protection | Short circuit, reverse polarity, overload protection | Short circuit, reverse polarity, overload protection |
| Output | RS-485 (supports Modbus protocol) | 4...20mA (load resistance <390Ω) | RS-485 (supports Modbus protocol) | 4...20mA (load resistance <390Ω) |
| Integrated functions | Slave address, port rate setting; zero setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting | Slave address, port rate setting; zero setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting | Slave address, port rate setting; zero setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting | Slave address, port rate setting; zero setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting |
| Indicator | Power: green LED; action: yellow LED; alarm: yellow LED | Power: green LED; action: yellow LED; alarm: yellow LED | Power: green LED; action: yellow LED; alarm: yellow LED | Power: green LED; action: yellow LED; alarm: yellow LED |
| Ambient temperature | -10°C...50°C | -10°C...50°C | -10°C...50°C | -10°C...50°C |
| Temperature drift | ±0.02% F.S./°C | ±0.02% F.S./°C | ±0.02% F.S./°C | ±0.02% F.S./°C |
| Response time | 2ms / 16ms / 40ms (configurable) | 2ms / 16ms / 40ms (configurable) | 2ms / 16ms / 40ms (configurable) | 2ms / 16ms / 40ms (configurable) |
| Ambient humidity | 35...85% RH (no condensation) | 35...85% RH (no condensation) | 35...85% RH (no condensation) | 35...85% RH (no condensation) |
| Anti-ambient light | Incandescent light: <3,000 lux | Incandescent light: <3,000 lux | Incandescent light: <3,000 lux | Incandescent light: <3,000 lux |
| Impulse withstand | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction |
| Vibration resistance | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions |
| Protection degree | IP67 | IP67 | IP67 | IP67 |
| Material | Housing: aluminum; lens cover: PMMA; display panel: PC | Housing: aluminum; lens cover: PMMA; display panel: PC | Housing: aluminum; lens cover: PMMA; display panel: PC | Housing: aluminum; lens cover: PMMA; display panel: PC |
| Dimensions | 65*51*23mm | 65*51*23mm | 65*51*23mm | 65*51*23mm |
| Connection | 2m 5-pin PVC cable | 2m 4-pin PVC cable | 2m 5-pin PVC cable | 2m 4-pin PVC cable |



| ITEM NO. | OPS-20248 (option I) | OPS-20249 (option J) | OPS-20250 (option K) | OPS-20251 (option L) |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Measuring center distance | 85mm | 85mm | 85mm | 85mm |
| Measuring range | ±25mm | ±25mm | ±25mm | ±25mm |
| Light source | Red laser (650nm) | Red laser (650nm) | Red laser (650nm) | Red laser (650nm) |
| Laser class | Class 2 | Class 2 | Class 2 | Class 2 |
| Spot diameter | Φ0.5mm @ 85mm | Φ0.5mm @ 85mm | Φ0.5mm @ 85mm | Φ0.5mm @ 85mm |
| Linear accuracy | RS-485: ±0.3% F.S. | 4...20mA: ±0.4% F.S. | RS-485: ±0.1% F.S. | 4...20mA: ±0.1% F.S. |
| Repeat accuracy | 60μm | 60μm | 60μm | 60μm |
| Resolution | 30μm @ 85mm | 30μm @ 85mm | 30μm @ 85mm | 30μm @ 85mm |
| Supply voltage | 10...30 VDC | 12...24 VDC | 10...30 VDC | 12...24 VDC |
| Voltage drop | <2.5V | <2.5V | <2.5V | <2.5V |
| Power consumption | ≤700mW | ≤700mW | ≤700mW | ≤700mW |
| Load current | 200mA | 200mA | 200mA | 200mA |
| Circuit protection | Short circuit, reverse polarity, overload protection | Short circuit, reverse polarity, overload protection | Short circuit, reverse polarity, overload protection | Short circuit, reverse polarity, overload protection |
| Output | RS-485 (supports Modbus protocol) | 4...20mA (load resistance <390Ω) | RS-485 (supports Modbus protocol) | 4...20mA (load resistance <390Ω) |
| Integrated functions | Slave address, port rate setting; zero setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting | Slave address, port rate setting; zero setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting | Slave address, port rate setting; zero setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting | Slave address, port rate setting; zero setting; product self-check; output setting; analog map settings; average setting; parameter query; single point teach; window teach; window teach-in setting |
| Indicator | Power: green LED; action: yellow LED; alarm: yellow LED | Power: green LED; action: yellow LED; alarm: yellow LED | Power: green LED; action: yellow LED; alarm: yellow LED | Power: green LED; action: yellow LED; alarm: yellow LED |
| Ambient temperature | -10°C...50°C | -10°C...50°C | -10°C...50°C | -10°C...50°C |
| Temperature drift | ±0.04% F.S./°C | ±0.04% F.S./°C | ±0.04% F.S./°C | ±0.04% F.S./°C |
| Response time | 2ms / 16ms / 40ms (configurable) | 2ms / 16ms / 40ms (configurable) | 2ms / 16ms / 40ms (configurable) | 2ms / 16ms / 40ms (configurable) |
| Ambient humidity | 35...85% RH (no condensation) | 35...85% RH (no condensation) | 35...85% RH (no condensation) | 35...85% RH (no condensation) |
| Anti-ambient light | Incandescent light: <3,000 lux | Incandescent light: <3,000 lux | Incandescent light: <3,000 lux | Incandescent light: <3,000 lux |
| Impulse withstand | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction |
| Vibration resistance | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions |
| Protection degree | IP67 | IP67 | IP67 | IP67 |
| Material | Housing: aluminum; lens cover: PMMA; display panel: PC | Housing: aluminum; lens cover: PMMA; display panel: PC | Housing: aluminum; lens cover: PMMA; display panel: PC | Housing: aluminum; lens cover: PMMA; display panel: PC |
| Dimensions | 65*51*23mm | 65*51*23mm | 65*51*23mm | 65*51*23mm |
| Connection | 2m 5-pin PVC cable | 2m 4-pin PVC cable | 2m 5-pin PVC cable | 2m 4-pin PVC cable |

## Laser displacement sensors




| ITEM NO. | OPS-20252<br>Linear accuracy: RS-485: ±0.3% F.S. | OPS-20253<br>Linear accuracy: 4...20mA: ±0.4% F.S. |
|---|---|---|
| Unit of measure | Each | Each |
| Measuring center distance | 50mm | 50mm |
| Measuring range | ±15mm | ±15mm |
| Light source | Red laser (650nm) | Red laser (650nm) |
| Laser class | Class 2 | Class 2 |
| Spot diameter | Φ0.5mm @ 50mm | Φ0.5mm @ 50mm |
| Linear accuracy | RS-485: ±0.3% F.S. | 4...20mA: ±0.4% F.S. |
| Repeat accuracy | 20μm | 20μm |
| Resolution | 10μm @ 50mm | 10μm @ 50mm |
| Supply voltage | 10...30 VDC | 12...24 VDC |
| Voltage drop | <2.5V | <2.5V |
| Power consumption | ≤700mW | ≤700mW |
| Load current | 200mA | 200mA |
| Circuit protection | Short circuit, reverse polarity, overload protection | Short circuit, reverse polarity, overload protection |
| Output | RS-485 (supports Modbus protocol) | 4...20mA (load resistance <390Ω) |
| Integrated functions | Slave address, port rate setting; zero setting; product self-check; output setting; average setting; parameter query; single point teach; window teach; window teach-in setting | Slave address, port rate setting; zero setting; product self-check; output setting; average setting; parameter query; single point teach; window teach; window teach-in setting |
| Indicator | Power: green LED; action: yellow LED; alarm: yellow LED | Power: green LED; action: yellow LED; alarm: yellow LED |
| Ambient temperature | -10°C...50°C | -10°C...50°C |
| Temperature drift | ±0.02% F.S./°C | ±0.02% F.S./°C |
| Response time | 2ms / 16ms / 40ms (configurable) | 2ms / 16ms / 40ms (configurable) |
| Ambient humidity | 35...85% RH (no condensation) | 35...85% RH (no condensation) |
| Anti-ambient light | Incandescent light: <3,000 lux | Incandescent light: <3,000 lux |
| Impulse withstand | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction | 500m/s² (approx. 50G), 3 times each in X, Y, Z direction |
| Vibration resistance | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions | 10...55Hz double amplitude 1mm, 2H each in X, Y, Z directions |
| Protection degree | IP67 | IP67 |
| Material | Housing: ABS; lens cover: PMMA | Housing: ABS; lens cover: PMMA |
| Dimensions | 65*51*23mm | 65*51*23mm |
| Connection | 2m 5-pin PVC cable | 2m 4-pin PVC cable |

## CCD laser diameter measurement



| ITEM NO. | OPS-20254 |
|---|---|
| Unit of measure | Each |
| Detection range | Width mode: 10mm; edge mode: ±5mm |
| Installation distance | 0...50cm |
| Smallest detectable object | Φ1mm (sensor head: 500mm) |
| Light source | Red semiconductor laser, laser class 1 |
| Light spot size | 14*12mm |
| Supply voltage | 12...24 VDC |
| Voltage drop | <2.5V |
| Linear accuracy | ±0.28% F.S. |
| Repeat accuracy | ±10μm (setting distance 100mm); ±15μm (setting distance 500mm) |
| Dimensions | Emitter: 55*32*23mm; receiver: 55*32*23mm |
| Temperature drift | ±0.08% F.S./°C (±8μm/°C) |
| Indicator (emitter) | Optical axis calibration: green LED; power: green LED |
| Indicator (receiver) | Optical axis calibration: green LED; position indicator: double strip LED (yellow, green) |
| Anti-ambient light | Incandescent light <3,000 lux |
| Protection degree | IP50 |
| Ambient temperature | -10°C...45°C (no freezing) |
| Ambient humidity | 35...85% RH (non-condensing) |
| Material | Housing: aluminium |
| Connection | PVC cable |
| Controller: supply voltage | 12...24 VDC |
| Controller: consumption current | ≤900mA (emitter and receiver) |
| Controller: display resolution | 1μm |
| Controller: display range | -99.999...99.999 |
| Controller: display method | Double-digit 8-segment display; upper, lower: red, 6-digit |
| Controller: response time | 2ms |
| Controller: output 1 | NPN NC |
| Controller: output 2 | RS485 output |
| Controller: ambient temperature | -10°C...45°C (non-condensing) |
| Controller: ambient humidity | 35...85% RH (non-condensing) |
| Controller: housing | Plastic |
| Controller: installation | Guide rail installation |

## Thin gas pressure sensor



| ITEM NO. | OPS-20255 |
|---|---|
| Unit of measure | Each |
| Rated pressure range | -100.0...100.0kPa |
| Set pressure range | -105.0...105.0kPa |
| Pressure resistance | 500kPa |
| Test gas type | Air, non-corrosive, non-combustible |
| Output | NPN/PNP (open collector); 1-5V (analog output) |
| Supply voltage | 15...30 VDC |
| Consumption current | ≤40mA (no load) |
| Max load current | 200mA |
| Max supply voltage | 30 VDC |
| Internal voltage drop | ≤1.5V |
| Control input | NPN: low-level input (mechanical switch or electronic switch), level voltage below 0.4 VDC, input time above 10ms; PNP: high-level input (mechanical switch or electronic switch), level voltage 20-24 VDC, input time above 10ms |
| Max current of solenoid valve drive | 200mA @ 24VDC max. |
| Repetition accuracy | ±0.2% F.S. ±1 digit |
| Reaction time | ≤2.5ms (malfunction prevention function: 2.5ms, 20ms, 100ms, 500ms, 1000ms, 1999ms optional) |
| Short circuit protection | OUT switch: yes; vacuum solenoid valve (v-sol) / vacuum breaking solenoid valve (d-sol): no |
| Indicator | Three-and-a-half-bit LED 7-segment display (red), sampling rate 5 times/s |
| Indication accuracy | ±0.6% F.S. ±1 digit |
| Linearity | ±2% F.S. |
| Action indicator | OUT: green; V-Sol control input: red (vacuum) |
| Protection degree | IP40 |
| Voltage resistance | 1000VAC 1min |
| Insulation resistance | >50MΩ (500VDC) |
| Impact resistance | 980m/s² (100G) |
| Temperature characteristic | ±2% F.S. based on 25°C (temperature range 0...50°C) |
| Air inlet form | 90° air inlet port |
| Cable specification | Oil resistant NBR/PVC drag chain cable |

KRONOS INDUSTRIES

# Light Curtains

130 items

- Synchronous scanning ensures safety and reliability.
- Various protection heights optional.
- Multiple resolutions optional: 14mm, 20mm, 25mm, 30mm, 40mm.
- Protects people from dangerous machines such as folding shear machines, paper cutters and punching machines.

info@kronosindustries.ca

## Area light curtains



### Area Light Curtain, 20mm beam pitch

**33 items · 11 lengths · Unit of measure: Each · 26 x 26mm cross-section**

- Ultra long detection range.
- Various series and specifications optional, detection range from 120 to 1920mm.
- Self-check function detects internal exceptions.
- Strong-intensity LED indicates operation status.

| COMMON SPECIFICATIONS | |
|---|---|
| Axis distance | 20mm |
| Sensing object | >Φ30mm opaque object |
| Detection width | 0.5...5m |
| Supply voltage | 12...24 VDC ±10% |
| Current consumption | Emitter: <60mA (independent of axis count); receiver: <45mA (8 axes; +5mA for every additional 8 axes) |
| Light source | 850nm infrared (modulated) |
| Circuit protection | Reverse polarity, short-circuit protection, overload protection |
| Ambient temperature | -10°C...55°C (no dew or ice); storage: -10°C...60°C |
| Ambient humidity | 35...85% RH; storage: 35...85% RH |
| Illumination intensity | Incandescent lamp: 4,000 lux |
| Anti-vibration | 10...55Hz, amplitude 1.2mm, 2 hours each in x, y and z direction |
| Anti-shock | Acceleration 500m/s² (approx. 50G), 3 times each in x, y and z direction |
| Protection degree | IP65 |
| Housing material | Housing: aluminum; light cover: PC; end cover: reinforced nylon |
| Connection | 18cm cable with M12 connector |
| Accessory | 5m connection cable (sold separately) |

| Optic axes | Protection height | Response time | Total height | Emitter item no. | Receiver NPN item no. | Receiver PNP item no. |
|---|---|---|---|---|---|---|
| 8 | 140mm | <10ms | 180mm | **OPS-20256** | **OPS-20257** | **OPS-20258** |
| 12 | 220mm | <15ms | 260mm | **OPS-20259** | **OPS-20260** | **OPS-20261** |
| 16 | 300mm | <20ms | 340mm | **OPS-20262** | **OPS-20263** | **OPS-20264** |
| 20 | 380mm | <25ms | 420mm | **OPS-20265** | **OPS-20266** | **OPS-20267** |
| 24 | 460mm | <30ms | 500mm | **OPS-20268** | **OPS-20269** | **OPS-20270** |
| 28 | 540mm | <35ms | 580mm | **OPS-20271** | **OPS-20272** | **OPS-20273** |
| 32 | 620mm | <40ms | 660mm | **OPS-20274** | **OPS-20275** | **OPS-20276** |
| 36 | 700mm | <45ms | 740mm | **OPS-20277** | **OPS-20278** | **OPS-20279** |
| 40 | 780mm | <50ms | 820mm | **OPS-20280** | **OPS-20281** | **OPS-20282** |
| 44 | 860mm | <55ms | 900mm | **OPS-20283** | **OPS-20284** | **OPS-20285** |
| 48 | 940mm | <60ms | 980mm | **OPS-20286** | **OPS-20287** | **OPS-20288** |



## Area Light Curtain, 40mm beam pitch

**69 items · 23 lengths · Unit of measure: Each · 26 x 26mm cross-section**

- Ultra long detection range.
- Various series and specifications optional, detection range from 120 to 1920mm.
- Self-check function detects internal exceptions.
- Strong-intensity LED indicates operation status.

| COMMON SPECIFICATIONS | |
|---|---|
| Axis distance | 40mm |
| Sensing object | >Φ60mm opaque object |
| Detection width | 0.5...5m |
| Supply voltage | 12...24 VDC ±10% |
| Current consumption | Emitter: <60mA (independent of axis count); receiver: <45mA (8 axes; +5mA for every additional 8 axes) |
| Light source | 850nm infrared (modulated) |
| Circuit protection | Reverse polarity, short-circuit protection, overload protection |
| Ambient temperature | -10°C...55°C (no dew or ice); storage: -10°C...60°C |
| Ambient humidity | 35...85% RH; storage: 35...85% RH |
| Illumination intensity | Incandescent lamp: 4,000 lux |
| Anti-vibration | 10...55Hz, amplitude 1.2mm, 2 hours each in x, y and z direction |
| Anti-shock | Acceleration 500m/s² (approx. 50G), 3 times each in x, y and z direction |
| Protection degree | IP65 |
| Housing material | Housing: aluminum; light cover: PC; end cover: reinforced nylon |
| Connection | 18cm cable with M12 connector |
| Accessory | 5m connection cable (sold separately) |

| Optic axes | Protection height | Response time | Total height | Emitter item no. | Receiver NPN item no. | Receiver PNP item no. |
|---|---|---|---|---|---|---|
| 4 | 120mm | <5ms | 160mm | **OPS-20289** | **OPS-20290** | **OPS-20291** |
| 6 | 200mm | <10ms | 240mm | **OPS-20292** | **OPS-20293** | **OPS-20294** |
| 8 | 280mm | <15ms | 320mm | **OPS-20295** | **OPS-20296** | **OPS-20297** |
| 10 | 360mm | <20ms | 400mm | **OPS-20298** | **OPS-20299** | **OPS-20300** |
| 12 | 440mm | <25ms | 480mm | **OPS-20301** | **OPS-20302** | **OPS-20303** |
| 14 | 520mm | <30ms | 560mm | **OPS-20304** | **OPS-20305** | **OPS-20306** |
| 16 | 600mm | <35ms | 640mm | **OPS-20307** | **OPS-20308** | **OPS-20309** |
| 18 | 680mm | <40ms | 720mm | **OPS-20310** | **OPS-20311** | **OPS-20312** |
| 20 | 760mm | <45ms | 800mm | **OPS-20313** | **OPS-20314** | **OPS-20315** |
| 22 | 840mm | <50ms | 880mm | **OPS-20316** | **OPS-20317** | **OPS-20318** |
| 24 | 920mm | <55ms | 960mm | **OPS-20319** | **OPS-20320** | **OPS-20321** |
| 26 | 1000mm | <60ms | 1040mm | **OPS-20322** | **OPS-20323** | **OPS-20324** |
| 28 | 1080mm | <65ms | 1120mm | **OPS-20325** | **OPS-20326** | **OPS-20327** |
| 30 | 1160mm | <70ms | 1200mm | **OPS-20328** | **OPS-20329** | **OPS-20330** |
| 32 | 1240mm | <75ms | 1280mm | **OPS-20331** | **OPS-20332** | **OPS-20333** |
| 34 | 1320mm | <80ms | 1360mm | **OPS-20334** | **OPS-20335** | **OPS-20336** |
| 36 | 1400mm | <85ms | 1440mm | **OPS-20337** | **OPS-20338** | **OPS-20339** |
| 38 | 1480mm | <90ms | 1520mm | **OPS-20340** | **OPS-20341** | **OPS-20342** |
| 40 | 1560mm | <95ms | 1600mm | **OPS-20343** | **OPS-20344** | **OPS-20345** |
| 42 | 1640mm | <100ms | 1680mm | **OPS-20346** | **OPS-20347** | **OPS-20348** |
| 44 | 1720mm | <105ms | 1760mm | **OPS-20349** | **OPS-20350** | **OPS-20351** |
| 46 | 1800mm | <110ms | 1840mm | **OPS-20352** | **OPS-20353** | **OPS-20354** |
| 48 | 1880mm | <115ms | 1920mm | **OPS-20355** | **OPS-20356** | **OPS-20357** |

## Measuring light curtains



### Measuring Light Curtain, 20mm beam pitch

**14 items · 7 lengths · Unit of measure: Each · 47 x 36mm cross-section**

- RS485 synchronous scanning technology, strong anti-interference function.
- Various detection heights, from 300mm to 2220mm.
- Optic axis distance 20mm.
- Dual switch control with two-way switch value and RS485 output.
- Fault alarm and fault diagnosis function.

| COMMON SPECIFICATIONS | |
|---|---|
| Axis distance | 20mm |
| Detection width | 0...5m |
| Sensing object | >Φ30mm opaque object |
| Output | Two outputs NPN/PNP, NC/NO + RS485 |
| Supply voltage | 15...30 VDC |
| Current consumption | <130mA @ 16 axes @ 30VDC |
| Light source | Infrared LED (modulated) |
| Circuit protection | Short circuit, zener, surge, reverse polarity protection |
| Ambient temperature | -25°C...55°C (no dew or ice); storage: -30°C...75°C |
| Ambient humidity | 35...95% RH |
| Illumination intensity | Incandescent lamp: >5,000 lux |
| Anti-vibration | 10...55Hz, amplitude 0.5mm, 2 hours each in x, y and z direction |
| Anti-shock | Acceleration 300m/s² (approx. 30G), 3 times each in x, y and z direction |
| Protection degree | IP67 |
| Housing material | Housing: aluminum; light cover: PC; end cover: aluminum |
| Connection | Emitter: M12 connector, 4 pin; receiver: M12 connector, 8 pin |
| Accessory | Shielding wire (8 pin) 1 pc, standard length 3m; shielding wire (4 pin) 1 pc, standard length 15m |

| Optic axes | Protection height | Response time | Total height | Emitter item no. | Receiver item no. |
|---|---|---|---|---|---|
| 16 | 300mm | 5ms | 363mm | **OPS-20358** | **OPS-20359** |
| 32 | 620mm | 10ms | 683mm | **OPS-20360** | **OPS-20361** |
| 48 | 940mm | 15ms | 1003mm | **OPS-20362** | **OPS-20363** |
| 64 | 1260mm | 18ms | 1323mm | **OPS-20364** | **OPS-20365** |
| 80 | 1580mm | 19ms | 1643mm | **OPS-20366** | **OPS-20367** |
| 96 | 1900mm | 20ms | 1963mm | **OPS-20368** | **OPS-20369** |
| 112 | 2220mm | 24ms | 2283mm | **OPS-20370** | **OPS-20371** |



## Measuring Light Curtain, 40mm beam pitch

**14 items · 7 lengths · Unit of measure: Each · 47 x 36mm cross-section**

- RS485 synchronous scanning technology, strong anti-interference function.
- Various detection heights, from 300mm to 2220mm.
- Optic axis distance 40mm.
- Dual switch control with two-way switch value and RS485 output.
- Fault alarm and fault diagnosis function.

| COMMON SPECIFICATIONS | |
|---|---|
| Axis distance | 40mm |
| Detection width | 0...5m |
| Sensing object | >Φ30mm opaque object |
| Output | Two outputs NPN/PNP, NC/NO + RS485 |
| Supply voltage | 15...30 VDC |
| Current consumption | <130mA @ 16 axes @ 30VDC |
| Light source | Infrared LED (modulated) |
| Circuit protection | Short circuit, zener, surge, reverse polarity protection |
| Ambient temperature | -25°C...55°C (no dew or ice); storage: -30°C...75°C |
| Ambient humidity | 35...95% RH |
| Illumination intensity | Incandescent lamp: >5,000 lux |
| Anti-vibration | 10...55Hz, amplitude 0.5mm, 2 hours each in x, y and z direction |
| Anti-shock | Acceleration 300m/s² (approx. 30G), 3 times each in x, y and z direction |
| Protection degree | IP67 |
| Housing material | Housing: aluminum; light cover: PC; end cover: aluminum |
| Connection | Emitter: M12 connector, 4 pin; receiver: M12 connector, 8 pin |
| Accessory | Shielding wire (8 pin) 1 pc, standard length 3m; shielding wire (4 pin) 1 pc, standard length 15m |

| Optic axes | Protection height | Response time | Total height | Emitter item no. | Receiver item no. |
|---|---|---|---|---|---|
| 8 | 280mm | 5ms | 363mm | **OPS-20372** | **OPS-20373** |
| 16 | 600mm | 10ms | 683mm | **OPS-20374** | **OPS-20375** |
| 24 | 920mm | 15ms | 1003mm | **OPS-20376** | **OPS-20377** |
| 32 | 1240mm | 18ms | 1323mm | **OPS-20378** | **OPS-20379** |
| 40 | 1560mm | 19ms | 1643mm | **OPS-20380** | **OPS-20381** |
| 48 | 1880mm | 20ms | 1963mm | **OPS-20382** | **OPS-20383** |
| 56 | 2200mm | 24ms | 2283mm | **OPS-20384** | **OPS-20385** |

KRONOS INDUSTRIES

# Tension Sensors

2 items

- Widely used to detect the tension of yarn during operation in the textile and chemical fiber industry.
- Fast response, high sensitivity.
- Wide measuring tension range.
- Fine linearity and temperature characteristics.
- Less damage to material.
- Mainly used in the textile industry.

info@kronosindustries.ca

## Tension sensors





| ITEM NO. | OPS-20386<br>Ceramic strain gauge | OPS-20387<br>Hall sensor |
|---|---|---|
| Unit of measure | Each | Each |
| Supply voltage | 10...30 VDC | 10...30 VDC |
| Current consumption | <15mA | <22mA |
| Non-linearity | <1% FS | <2% FS |
| Tension range | 0...300cN, 0...100cN | 0...100cN, 0...300cN |
| Sensor | Ceramic strain gauge type | Hall sensor |
| Output | Voltage output: 0.5...6 VDC | Voltage output: 0.3...2.3 VDC |
| Connection | Terminal | Plug-in unit |
| Circuit protection | Reverse polarity protection | Reverse polarity protection, surge protection |
| Ambient temperature | 0...50°C (no dew or ice) | 0...50°C (no dew or ice) |
| Housing material | Housing: zinc aluminum; transmission: ceramics | Housing: zinc alloy; transmission: ceramics |

KRONOS INDUSTRIES

# Sensor Accessories

55 items

info@kronosindustries.ca

## Connection cables with LED





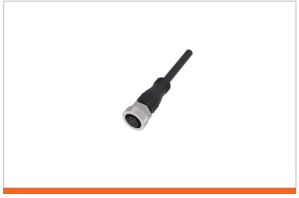

| ITEM NO. | OPS-20388<br>M12*40 – Diameter: Φ4.4 | OPS-20389<br>M12*42 – Diameter: Φ4.4 | OPS-20390<br>M12*40 – Diameter: Φ5.2 | OPS-20391<br>M12*42 – Diameter: Φ5.2 |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Specifications | M12*40 | M12*42 | M12*40 | M12*42 |
| Operating voltage | 30VDC max | 30VDC max | 30VDC max | 30VDC max |
| Nominal current | 4A | 4A | 4A | 4A |
| Insulation resistance | 100MΩ | 100MΩ | 100MΩ | 100MΩ |
| Output | NPN/PNP | NPN/PNP | NPN/PNP | NPN/PNP |
| Temperature range | -30°C...90°C | -30°C...90°C | -30°C...90°C | -30°C...90°C |
| Outer covering | PU | PU | PU | PU |
| Bearing material | Nickel-copper alloy | Nickel-copper alloy | Nickel-copper alloy | Nickel-copper alloy |
| Protection degree | IP67 | IP67 | IP67 | IP67 |
| Material | PVC/PU | PVC/PU | PVC/PU | PVC/PU |
| Diameter | Φ4.4 | Φ4.4 | Φ5.2 | Φ5.2 |
| Core wire | 3*0.34mm² (0.2*11) | 3*0.34mm² (0.2*11) | 4*0.34mm² (0.2*11) | 4*0.34mm² (0.2*11) |
| Length | 2m / 5m | 2m / 5m | 2m / 5m | 2m / 5m |

## Connection cables






| ITEM NO. | OPS-20392<br>M8*35.5 | OPS-20393<br>M8*21 (option A) | OPS-20394<br>M8*40.5 | OPS-20395<br>M8*21 (option B) |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Specifications | M8*35.5 | M8*21 | M8*40.5 | M8*21 |
| Operating voltage | 60 VAC/DC | 60 VAC/DC | 60 VAC/DC | 60 VAC/DC |
| Nominal current | 4A | 4A | 4A | 4A |
| Insulation resistance | 100MΩ | 100MΩ | 100MΩ | 100MΩ |
| Temperature range | -30°C...90°C | -30°C...90°C | -30°C...90°C | -30°C...90°C |
| Outer covering | PVC | PVC | PVC | PVC |
| Bearing material | Nickel-copper alloy | Nickel-copper alloy | Nickel-copper alloy | Nickel-copper alloy |
| Protection degree | IP67 | IP67 | IP67 | IP67 |
| Material | PVC/PU | PVC/PU | PVC/PU | PVC/PU |
| Diameter | Φ4.4 | Φ4.4 | Φ4.4 | Φ4.4 |
| Core wire | 3*0.25mm² (0.1*32) / 4*0.25mm² (0.1*32) | 3*0.25mm² (0.1*32) / 4*0.25mm² (0.1*32) | 3*0.25mm² (0.1*32) / 4*0.25mm² (0.1*32) | 3*0.25mm² (0.1*32) / 4*0.25mm² (0.1*32) |
| Length | 2m / 5m | 2m / 5m | 2m / 5m | 2m / 5m |






| ITEM NO. | OPS-20396<br>M12*40 | OPS-20397<br>M12*42 (option A) | OPS-20398<br>M12*42 (option B) | OPS-20399<br>M12*42 (option C) |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Specifications | M12*40 | M12*42 | M12*42 | M12*42 |
| Operating voltage | 250 VAC/DC | 250 VAC/DC | 250 VAC/DC | 250 VAC/DC |
| Nominal current | 4A | 4A | 4A | 4A |
| Insulation resistance | 100MΩ | 100MΩ | 100MΩ | 100MΩ |
| Temperature range | -30°C...90°C | -30°C...90°C | -30°C...90°C | -30°C...90°C |
| Outer covering | PVC | PVC | PVC | PVC |
| Bearing material | Nickel-copper alloy | Nickel-copper alloy | Nickel-copper alloy | Nickel-copper alloy |
| Protection degree | IP67 | IP67 | IP67 | IP67 |
| Material | PVC/PU | PVC/PU | PVC/PU | PVC/PU |
| Diameter | Φ5.2 | Φ5.2 | Φ5.2 | Φ5.2 |
| Core wire | 3*0.34mm² (0.2*11) / 4*0.34mm² (0.2*11) / 5*0.34mm² (0.2*11) | 3*0.34mm² (0.2*11) / 4*0.34mm² (0.2*11) / 5*0.34mm² (0.2*11) | 3*0.34mm² (0.2*11) / 4*0.34mm² (0.2*11) / 5*0.34mm² (0.2*11) | 3*0.34mm² (0.2*11) / 4*0.34mm² (0.2*11) / 5*0.34mm² (0.2*11) |
| Length | 2m / 5m | 2m / 5m | 2m / 5m | 2m / 5m |

## Connectors





| ITEM NO. | OPS-20400<br>M8*40 | OPS-20401<br>M8*46.5 | OPS-20402<br>M12*48 |
|---|---|---|---|
| Unit of measure | Each | Each | Each |
| Specifications | M8*40 | M8*46.5 | M12*48 |
| Operating voltage | 60 VAC/DC | 60 VAC/DC | 250 VAC/DC |
| Nominal current | 4A | 4A | 4A |
| Insulation resistance | 100MΩ | 100MΩ | 100MΩ |
| Temperature range | -40°C...85°C | -40°C...85°C | -40°C...85°C |
| Outer covering | PVC | PVC | PVC |
| Bearing material | Nickel-copper alloy | Nickel-copper alloy | Nickel-copper alloy |
| Protection degree | IP67 | IP67 | IP67 |
| Diameter | 4...5mm | 4...5mm | 4...6mm |
| Core wire | 3 pins / 4 pins | 3 pins / 4 pins | 4 pins / 5 pins |





| ITEM NO. | OPS-20403<br>M12*37.6 (option A) | OPS-20404<br>M12*56.7 | OPS-20405<br>M12*37.6 (option B) |
|---|---|---|---|
| Unit of measure | Each | Each | Each |
| Specifications | M12*37.6 | M12*56.7 | M12*37.6 |
| Operating voltage | 250 VAC/DC | 250 VAC/DC | 250 VAC/DC |
| Nominal current | 4A | 4A | 4A |
| Insulation resistance | 100MΩ | 100MΩ | 100MΩ |
| Temperature range | -40°C...85°C | -40°C...85°C | -40°C...85°C |
| Outer covering | PVC | PVC | PVC |
| Bearing material | Nickel-copper alloy | Nickel-copper alloy | Nickel-copper alloy |
| Protection degree | IP67 | IP67 | IP67 |
| Diameter | 4...6mm | 4...6mm | 4...6mm |
| Core wire | 4 pins / 5 pins | 4 pins / 5 pins | 4 pins / 5 pins |

## Distribution boxes






| ITEM NO. | OPS-20406<br>90*45 (option A) | OPS-20407<br>98*45 (option A) | OPS-20408<br>152*54 (option A) | OPS-20409<br>90*45 (option B) |
|---|---|---|---|---|
| Unit of measure | Each | Each | Each | Each |
| Specifications | 90*45 | 98*45 | 152*54 | 90*45 |
| Operating voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC | 10...30 VDC |
| Nominal current | 2A/port, 8A/total | 2A/port, 8A/total | 4A/port, 10A/total | 2A/port, 8A/total |
| Insulation resistance | 8mΩ max | 8mΩ max | 8mΩ max | 8mΩ max |
| Temperature range | -20°C...80°C | -20°C...80°C | -20°C...80°C | -20°C...80°C |
| Output status | NPN/PNP | NPN/PNP | NPN/PNP | NPN/PNP |
| Output way | NO | NO | NO | NO |
| Output indicator | Yellow LED | Yellow LED | Yellow LED | Yellow LED |
| Connection specification | M8 port, 3-core | M8 port, 3-core | M12 port, 4-core | M8 port, 3-core |
| Socket material | Carobronze, gold plated | Carobronze, gold plated | Carobronze, gold plated | Carobronze, gold plated |
| Material | — | PVC | — | — |
| Length | — | 3m | — | — |



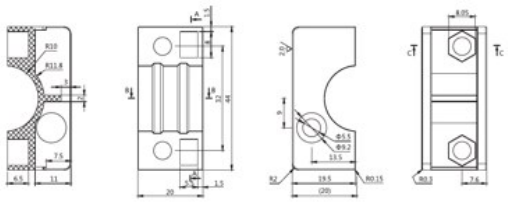


| ITEM NO. | OPS-20410<br>98*45 (option B) | OPS-20411<br>152*54 (option B) | OPS-20412<br>152*54 (option C) |
|---|---|---|---|
| Unit of measure | Each | Each | Each |
| Specifications | 98*45 | 152*54 | 152*54 |
| Operating voltage | 10...30 VDC | 10...30 VDC | 10...30 VDC |
| Nominal current | 2A/port, 8A/total | 4A/port, 10A/total | 4A/port, 10A/total |
| Insulation resistance | 8mΩ max | 8mΩ max | 8mΩ max |
| Temperature range | -20°C...80°C | -20°C...80°C | -20°C...80°C |
| Output status | NPN/PNP | NPN/PNP | NPN/PNP |
| Output way | NO | NO | NO |
| Output indicator | Yellow LED | Yellow LED | Yellow LED |
| Connection specification | M8 port, 3-core | M12 port, 4-core | M12 port, 4-core |
| Socket material | Carobronze, gold plated | Carobronze, gold plated | Carobronze, gold plated |
| Material | PVC | — | PVC |
| Length | 3m | — | 5m |

## Mounting brackets

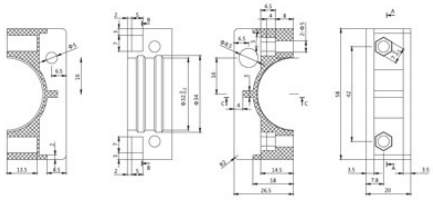
**OPS-20413** Mounting Bracket, Style 01 — Unit of measure: Each

Fits: OPS-20102



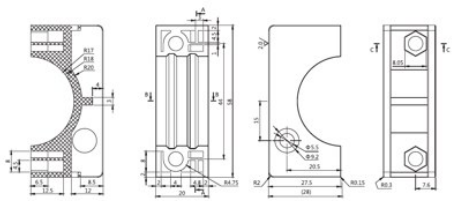
**OPS-20414** Mounting Bracket, Style 02 — Unit of measure: Each

Fits: OPS-20103, OPS-20106, OPS-20115

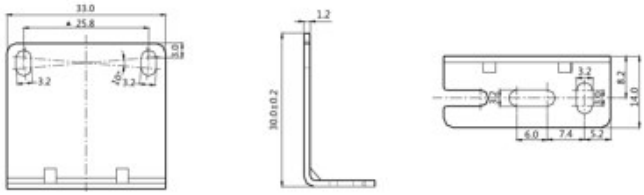


**OPS-20415** Mounting Bracket, Style 03 — Unit of measure: Each

Fits: OPS-20104, OPS-20116

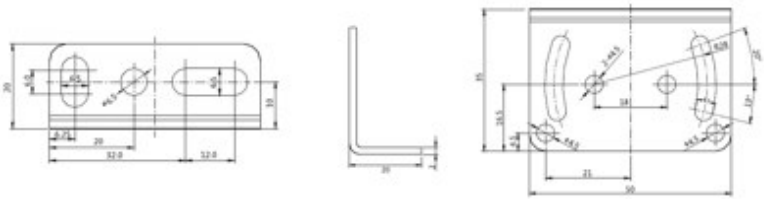


**OPS-20416** Mounting Bracket, Style 04 Unit of measure: Each



**OPS-20417** Mounting Bracket, Style 05 Unit of measure: Each

Fits: OPS-20144, OPS-20184



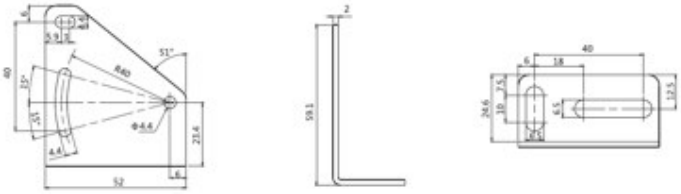
**OPS-20418** Mounting Bracket, Style 06 Unit of measure: Each

Fits: OPS-20144 to OPS-20145, OPS-20184 to OPS-20185



**OPS-20419** Mounting Bracket, Style 07 Unit of measure: Each

Fits: OPS-20146, OPS-20166, OPS-20170, OPS-20186

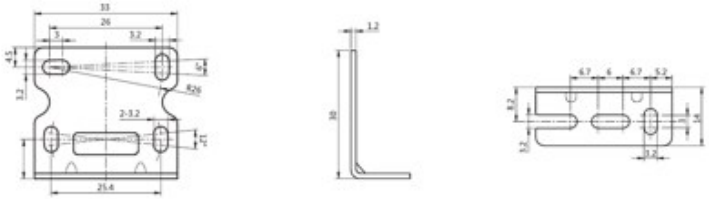


**OPS-20420** Mounting Bracket, Style 08 Unit of measure: Each



**OPS-20421** Mounting Bracket, Style 09 Unit of measure: Each

Fits: OPS-20142 to OPS-20143, OPS-20171 to OPS-20172, OPS-20175, OPS-20183, OPS-20187, OPS-20191 to OPS-20193, OPS-20198 to OPS-20200



**OPS-20422** Mounting Bracket, Style 10 Unit of measure: Each

Fits: OPS-20133 to OPS-20134, OPS-20168 to OPS-20169, OPS-20173 to OPS-20174, OPS-20180 to OPS-20181, OPS-20189 to OPS-20190



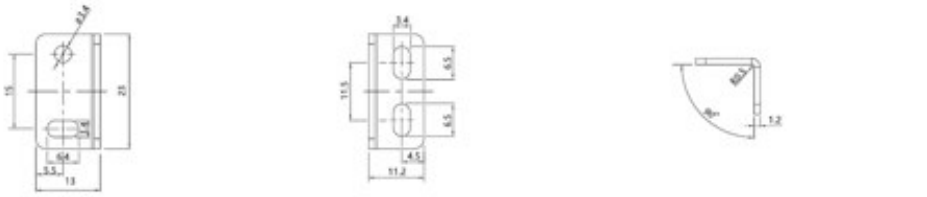
**OPS-20423** Mounting Bracket, Style 11 Unit of measure: Each

Fits: OPS-20134, OPS-20169, OPS-20174, OPS-20181, OPS-20190



**OPS-20424** Mounting Bracket, Style 12 Unit of measure: Each

Fits: OPS-20140, OPS-20167, OPS-20194, OPS-20196



**OPS-20425** Mounting Bracket, Style 13 Unit of measure: Each

Fits: OPS-20140, OPS-20167, OPS-20194, OPS-20196



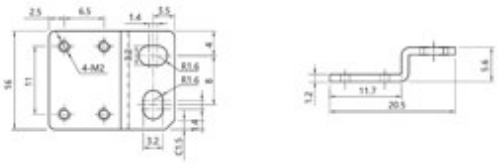
**OPS-20426** Mounting Bracket, Style 14 Unit of measure: Each

Fits: OPS-20140, OPS-20167, OPS-20194, OPS-20196



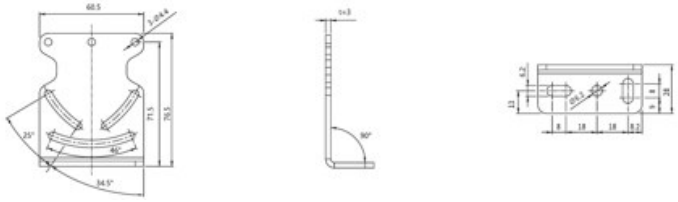
**OPS-20427** Mounting Bracket, Style 15 Unit of measure: Each

Fits: OPS-20138 to OPS-20139, OPS-20188, OPS-20195, OPS-20197



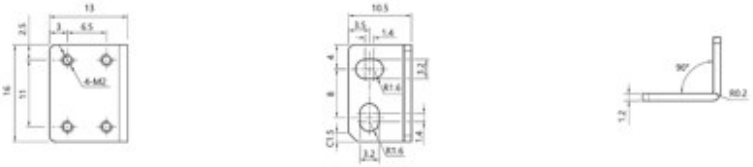
**OPS-20428** Mounting Bracket, Style 16 Unit of measure: Each

Fits: OPS-20224 to OPS-20235, OPS-20240 to OPS-20251

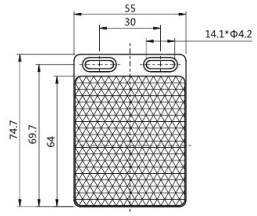


**OPS-20429** Mounting Bracket, Style 17 Unit of measure: Each

Fits: OPS-20138 to OPS-20139, OPS-20188, OPS-20195, OPS-20197

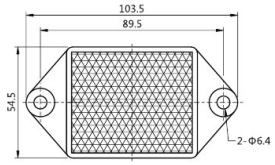


## Reflectors



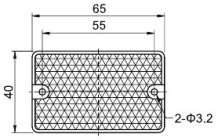

**OPS-20430** Unit: Each

Reflector, 74.7 × 55 mm rectangular, slotted



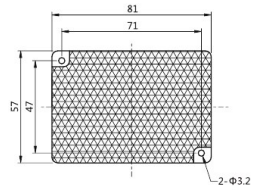

**OPS-20431** Unit: Each

Reflector, 103.5 × 54.5 mm, ear-mount



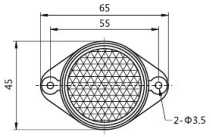

**OPS-20432** Unit: Each

Reflector, 65 × 40 mm rectangular



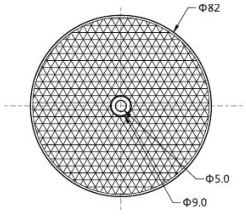

**OPS-20433** Unit: Each

Reflector, 81 × 57 mm rectangular



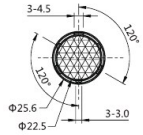

**OPS-20434** Unit: Each

Reflector, 65 × 45 mm round, ear-mount



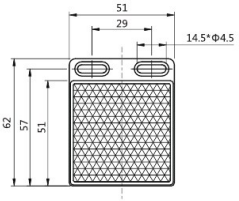

**OPS-20435** Unit: Each

Reflector, Ø82 mm round



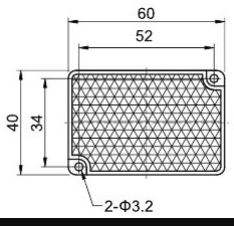

**OPS-20436** Unit: Each

Reflector, Ø25.6 mm round



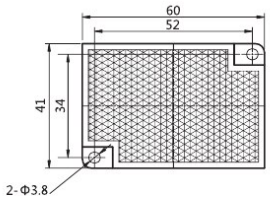

**OPS-20437** Unit: Each

Reflector, 51 × 62 mm rectangular, slotted



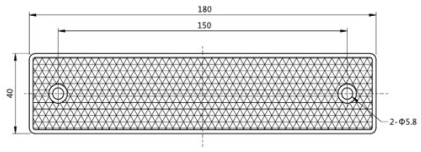

**OPS-20438** Unit: Each

Reflector, 60 × 40 mm rectangular



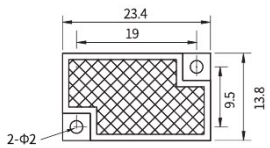

**OPS-20439** Unit: Each

Reflector, 60 × 41 mm rectangular



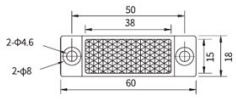

**OPS-20440** Unit: Each

Reflector, 180 × 40 mm rectangular




**OPS-20441** Unit: Each

Reflector, 23.4 × 13.8 mm miniature




**OPS-20442** Unit: Each

Reflector, 60 × 18 mm miniature